ISSI GRADUATE FELLOWS WORKING PAPER SERIES 2012-2013.63

Municipal Parks: An Environmental Justice Analysis of Conditions and Use in the San Francisco East Bay

by Pam Mei Wai Graybeal

Department of Environmental Science, Policy, and Management
University of California, Berkeley
August 27, 2013

Institute for the Study of Societal Issues

Pam Mei Wai Graybeal
Department of Environmental Science, Policy, and Management
University of California at Berkeley

Pam.mei@berkeley.edu

Municipal parks with similar design features are found in cities and towns throughout the United States. As public commons, they reveal a great deal about social values, norms, and power. This study utilizes an environmental justice framework and a modified System for Observing Play and Recreation in Communities method to evaluate park conditions and usage. Forty-seven parks, most less than seven acres in size, located in census tracts reporting populations at or above the California averages for Asian, African American, or American Indian residents in the cities of Richmond, Berkeley, and Oakland, California were visited at various times throughout the day and week. Observations confirmed previous studies that found predominantly sedentary uses with limited variety. Among adult and teen park users, there were fewer women than men, which also corresponded with previous studies in other cities. Most parks had low levels of use considering the population density of the surrounding neighborhood. Access to sanitary infrastructure and drinking water was limited, as was equipment for adults. Facilities for competitive sports were common, while alternative outdoor facilities for group rhythmic, creative, or coordinated movement were rare. It is recommended that municipalities could address environmental inequalities and increase park usage and benefits for diverse female constituents by providing free or very low-cost culturally appropriate programming and equipment, enhancing sanitation infrastructure, and facilitating active transportation to/from parks.

Introduction

In the morning, a small pocket park nestled among houses and apartment buildings is alive with residents who live within a few blocks of the park. Four people are practicing qigong,[1] while young children are busy in a play area nearby that features natural wood and stone materials. At mid-day, another loosely-knit intergenerational group of people meets drop-in style for ethnic dance, accompanied by acoustic music or hand drums. A bulletin board posts announcements of regularly scheduled events, and a comment box collects feedback from park users and nearby residents for the city's park manager. The park includes a water fountain, a composting toilet and a hand-washing sink that is stocked with biodegradable soap and chlorine-free paper towels that are thrown into a compost bin. Small trash and recycling bins are nearby.

At another medium-sized park nearby, a park steward loans out jump ropes, balls, roller skates and other equipment to pre-registered residents or non-residents who leave a deposit. Skaters--most with knee, elbow, and wrist guards--glide around converted tennis courts that were previously unused by park visitors. A group of people of mixed age, gender, and background are negotiating terms to create a new game under the guidance of park staff, who are trained and accustomed to facilitating cooperation among park visitors. Park users are encouraged to communicate with park staff and administration about facilities, spaces, or equipment needed for traditional games and diversions from around the world.

These two scenarios represent my visions of urban parks. After having spent a great deal

[1] "An ancient Chinese healing art involving meditation, controlled breathing, and movement exercises designed to improve physical and mental well-being and prevent disease." (Merriam Webster 2013).

of time in parks--large and small—in a variety of different locales around the world, I gradually came to wonder why there seemed to be so few women in our urban[2] parks who were physically active. My question led me to design a research protocol that would allow me to visit a random selection of parks during different times of the day in order to see if this observation was indeed consistent throughout different parks in neighborhoods where there were significant populations of people of African, American Indian, and Asian heritage.[3, 4]

When I observed municipal parks in the San Francisco East Bay area in 2012, I indeed found a different reality from the two hypothetical scenarios presented above. For the most part, parks had surprisingly low numbers of users relative to the population density of the surrounding neighborhoods. There was very little variety in the types of activities taking place in the parks, and few users were physically active. Men were more active than women. Staffing was present only at sites where there were recreation centers and, with one exception for a teen program, staff remained inside the recreational center building rather than engaging with park users outside.

In this paper, I first present a brief literature review that encompasses both an overview of the history of municipal parks in America and a discussion of the potential of municipal parks for shaping cultural norms and improving health and wellbeing. I then introduce my theoretical framework of environmental justice. Next, I turn to my methods and findings. Although my

[2] I use the terms municipal and urban to describe the parks throughout this paper. These terms have many things in common, but are not necessarily interchangeable. When I use the term municipal park, I refer to parks that are owned and maintained by a town or city regardless of its population size or density. The parks that I observed in this research are both urban and municipal parks. I excluded regional parks that are located in the urban setting, but are not owned and maintained by a city. The rationale for the different uses of these terms is to impress upon the reader that common space is an important asset for urban and rural settings, and they share many commonalities; however, urban parks also carry a slightly different connotation and history.

[3] Although it is beyond the scope of this paper to delve into this topic, the rationale for selecting a focus on women of Asian, African, and American Indian heritage is directly related to the history of cultural suppression and attempts at assimilation of traditional oral cultures that integrated physical and musical forms of communication and spirituality into daily life. While people from Latin America and other parts of the world have also been affected, current research does indicate that in many ways, Hispanics are more likely to utilize public parks. These findings raise the possibility for future research seeking to understand what factors encourage park use among different cultures, but because of these indications, as well as to narrow the scope of this project, I focus on parks located in neighborhoods where Asian, African American, and American Indian populations are at or above the California average for each respective population.

[4] I use the term heritage to encompass the role of cultural influences as well as physical (biological) inheritance. (I maintain use of category labels such as “Black” as used by the source—e.g. US Census, which reflect contemporary understandings of the terms).

empirical research is focused primarily on the current conditions and usage of urban parks, this research is meant to contribute to a broader understanding of how use of these public spaces relates to contemporary and historical cultural norms, processes, and practices. The goal of this research is to highlight the need for park managers, community members, and advocates to utilize a comprehensive framework for understanding why public parks, which are intended to benefit the entire population, are attracting only a small segment of the population for a limited number of activities.

Literature Review

Park Design and History

Municipal parks vary in size and type; yet, overwhelmingly, in small towns and large cities across the country, these parks share many common and predictable features in design and use (Loukaitou-Sideris 1995). The reasons for this homogeneity are complex and originate in the urban parks movement that began in the mid 1800's with large parks (i.e. Central Park in New York City) and expanded to include smaller neighborhood parks during the Progressive Era through today. Public parks and pools were created with both compassionate and manipulative intentions to improve the wellbeing of the urban poor and working classes, to assimilate recent immigrants, and to control and reform deviants (Weyeneth 1984, Byrne and Wolch 2009, Wiltse 2007). Weyeneth (1984) describes parks as "moral spaces," transmitting values and norms that shape how we interact with each other and our environment[5] while Byrne and Wolch (2009, 745)

[5] Various types of learning occur in urban parks. Visibly posted signs that describe permitted or restricted activities officially govern behavior in parks; however, unwritten rules and norms also prevail. These norms, primarily established through legal and social enforcement during the first few decades of the parks movement during the late 1800s and early 1900s, have persisted and

state that parks "exist for specific ecological, social, political, and economic reasons—reasons that shape how people perceive and use parks."

Throughout the course of the last century, norms around which behaviors are acceptable in municipal parks have been created, enforced, and reproduced in such a way as to make many of them invisible—yet still influential—in America today. For example, early park creators sought to provide urban working class people with places for wholesome, family recreation that was fairly passive, such as picnicking. They struggled to control and reign in behavior when park users sought to run and play on the grass rather than stay on walkways or picnic. Tickets were regularly meted out for rowdy and undesirable behavior during the first few decades of urban park creation (Weyeneth 1984). The distribution of political and economic power has been a major factor in shaping the landscape of America and the cultural practices that are valued or suppressed.[6] These notions of acceptable behavior have been particularly powerful in restricting the activities of women and people whose cultures were marginalized through efforts at assimilation, suppression, or substitution to promote a narrow Euro-centric vision of American culture.

Much of the literature on park use is dominated by leisure studies research, where socio-demographic variables of individuals take precedence over examinations that encompass historical, political-economic, and geographic factors (Byrne and Wolch 2009). Byrne and Wolch therefore propose a conceptual framework that moves away from an emphasis on user characteristics, while integrating environmental justice, cultural landscape, and political ecology paradigms for understanding urban nature-society relations exemplified by use or non-use of

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been transmitted through time as acceptable public behaviors. For example, municipal parks, and the activities most commonly taking place within them, are very influential in shaping how Americans interact with each other and relate to other organisms.

[6] Byrne and Wolch (2009) also provide a concise overview of the history and political-economy related to American parks.

urban parks.[7] A brief history of parks follows. I will then discuss the literature examining different preferences in park design and use, associated health benefits of parks and physical activity, as well as environmental justice concerns regarding park access, use, and quality.

Byrne and Wolch (2009) trace a history of parks in the 19th Century as "medical technologies," where both human bodies and landscapes were seen as objects for improvement and modification. In the 1930s, parks advocates in the recreation movement shifted the previous emphases on preventing crime and enhancing democracy to competition and physical fitness, which had racial connotations and was influenced by Social Darwinism. While parks discourse often espoused the democratic benefits of social class mixing promoted in parks, in reality, park use was often highly segregated through various means. Race riots in Chicago and Los Angeles highlighted the tensions created by unequal facilities, unfavorable conditions and locations, and mistreatment by park staff or police. In addition to the social control exerted through parks, they also radically transformed physical ecologies, often creating a pastoral-inspired landscape with foreign plants and animals replacing the native flora and fauna (Byrne and Wolch 2009). While Byrne and Wolch (2009) describe park uses as having a great variety, with differences in preferences found among different user groups, I suggest that activities taking place in municipal parks are quite limited when considering the potential possibilities of what could take place. In order to increase park usage, we need to reevaluate Euro-centric norms for desirable behavior (rooted in parks' history of social control and assimilation) when determining the design and regulation of parks.

[7] This seminal article should be seen as providing a comprehensive accompaniment to the research presented here. While my research examines who is using parks, and how, the results and discussion will be best understood and useful for action when considered in light of Byrne and Wolch's article.

Park Use, Park Features, and Social Location

Park use and preferences have been found to vary by gender and/or ethnicity (Ho et al. 2005, Gobster 2002, Mumford et al. 2005, Krenichyn 2004, Cohen et al. 2010). Among the limited number of studies available, data indicates that women visit and use parks for physical activity less than men (Mumford et al. 2005, Krenichyn 2004, Floyd et al. 2008, Ho et. al 2005). Shores et al. (2007) found that low-income women from ethnic minority groups reported the most barriers to outdoor recreation, while young white males reported the least. These findings are consistent with other research that indicates that barriers to leisure are greater among people in "non-dominant" groups, and that young adults, males, whites, and people with high SES are conferred highest status among a normative hierarchal model within the US. A review of four studies identified common barriers in regards to participation in outdoor recreation: lack of information, crowding, distance to recreational area, family commitments, poor health of family members, cost, and lack of a companion. Additional moderate barriers included fear of crime, lack of equipment, high admission costs, and poor maintenance of facilities and equipment. Older adults were more likely to list poor health, lack of companion and fear of crime, while women were constrained by lack of time for one's self. Lack of leisure time among women is explained by women's continued shouldering of most household responsibilities, regardless of their employment status outside of the home (Shores et al. 2007). A study of high-minority neighborhoods in Los Angeles revealed that playgrounds and track areas were the only locations were approximately equal numbers of men and women were present: In all other park areas, men outnumbered women (Cohen et al. 2010).

Payne et al. 2002 also found that race and age correlate with park use, with older adults and African Americans visiting parks less than younger white adults. In this study, African

Americans surveyed near Cleveland, Ohio preferred parks that offered active recreational facilities for active activities such as sports over a "conservation design" that would encourage passive activities such as picnicking and fishing (Payne et al. 2002); however, the methodology and results from this study highlight common simplifications that present challenges to comprehensive understanding of the causes and consequences of park use i.e. it frames conservation as non-use and recreation as use and forces respondents to select one over the other even when they may desire both.

Design features interact with user preferences to encourage or discourage particular types of activity (Floyd et al. 2008). Research in Southern California found gyms and baseball fields attracted the most users, while sidewalks, lawns, and play areas drew the next highest numbers of users. Park areas were used differently based on gender: Females were more likely to utilize dance studios, sidewalks, and play areas while men were most frequently seen at baseball fields, gyms, and lawns. Additionally, men were predominant at basketball courts, soccer fields, and tennis courts (Cohen et al. 2010). Park features attract different users based on characteristics such as gender, with men more likely to be present and physically active in courts or fields designed for sports—prominent features of many municipal parks; meanwhile, women are often found in playground areas accompanying children. These child-centered areas generally lack adult-sized equipment or facilities that could encourage physical activity among adults. In Mozingo's (1989) research of downtown office workers, men found derelicts in the parks and plazas more unappealing than women.

Historical experiences of African Americans in America may contribute to preferences for open spaces (as opposed to heavily wooded areas) with built design features (which reinforce a sense of human presence over isolation) due to fear of other humans (lynching and violence)

and animals, that can be based on a collective memory of fear and danger present in wooded areas (see discussion in Virden and Walker 1999).

While there is a great deal of variation among people, and there is variation within an individual over the course of life, there are also many commonalities. All life on this Earth has certain fundamental needs. Within our species, we have certain needs for air, water, nutrition, ways to adapt to or mitigate conditions such as heat or cold to maintain a certain range of body temperature, sleep, bodily elimination of waste, sense interaction, sexual development and interaction, and movement (Mangal 1995, Cacioppo and Patrick 2008). Movement is fundamental to growth and life and creates sensations that inform how individuals relate to the their surroundings and other living beings. Thus, movement and interaction are vital in shaping environmental and social ethics. Urban parks certainly have no responsibility to meet all of these needs, but they can send strong messages to park users through how they acknowledge or deny certain basic needs. For example, by providing space for recreation without accommodating the need for elimination, they convey to users that they are either not intended to use the park for longer than the period between elimination, assume users otherwise have access to restrooms (e.g. return home or to a neighbor's), or do not recognize their humanity by denying access. Extreme examples of racial inequality and implicit dehumanization occurred in urban mini-pools built in the 1960's that became notorious for the number of people, especially youth, who urinated in them; yet, these pools were built with no restroom facilities, leaving users with no choice but to dress and return home or use the pool (Wiltse 2007).

Parks as public spaces may be particularly important for people for whom a connection to place is culturally important, yet who have experienced relocation or dislocation due to environmental and social conditions such as drought or colonization. This paper seeks to

examine the reality of current parks and the potential of parks to serve a broad constituency that is reflective of America's cultural diversity. In order to do so, one most take into account the historical and cultural factors surrounding park use when considering the results of the empirical research presented later in this paper.

Significance of Parks and their Benefits

Parks can serve as important places for free or low-cost physical activity and recreation, and provide vital outlets for physical activity, social interaction, and development of community cohesion. In addition to enhancing quality of life through improved wellbeing, parks can also be important sites for learning about one's relationship to the environment and social structures, as well as shape the development of an environmental ethic. Fleming (1998) suggests that good public discourse and good public space are interrelated and interdependent. Other features offered by parks include a sense of rejuvenation, where one can breathe and dream (Fisher 2005).

As an example of the broad array of benefits that parks could provide to society, consider the Oakland Parks and Recreation Department's tagline: "expose, enlighten, empower, and encourage educational excellence through recreational experiences." Their website also explains:

> We offer critical quality of life programming in areas of enrichment, cultural arts, prevention and intervention, sports and physical activities, health and wellness, youth violence abatement, and other leisure activities for adults, youth, and children. Programs and Camps at recreation centers, pools and parks are part of the efforts to promote health, stem obesity, and encourage civic participation, personal development, and empowerment. We preserve the best of Oakland and connect communities (City of Oakland 2013, "Parks and Recreation")

Since parks can serve as sites for recreation and rejuvenation that enhance wellbeing through physical movement and cultural reproduction of knowledge related to how one relates to self,

other people, and the world around them, it is especially important that they are accessible and appealing to disenfranchised populations that otherwise have limited opportunities for physical recreation (Taylor et al. 2007, Dahmann et al. 2010, Tester and Baker 2009).

There are many ways in which parks can also benefit human health through the promotion of physical activity, social interaction, and overall wellbeing (Bedimo-Rung et al. 2005, Cohen et al. 2007, Orsega-Smith et al. 2004). Improved physical health could reduce diseases related to obesity, including diabetes, cardiovascular disease, cancer, and osteoporosis, which are among the leading causes of premature death and reduced quality of life in the US and worldwide (Kumanyikaa et al. 2002). Ho et al. (2005, 302) conclude that "for all ethnicities, the availability of parks and open spaces represent desirable amenities, and underscore[s] the importance of making these facilities accessible and desirable for all citizens."

Park activities and programming may be effective alternatives to sedentary activities such as watching TV and playing video games. Researchers have found that youth physical activity was correlated with access, quality, and location of physical activity resources, parental involvement, enjoyment of the physical activity or physical education, and self-efficacy. Organized activities were effective in increasing physical activity among African American youth, while Alaskan Natives and Native Americans experienced reduced passive TV viewing and video game use as a result of the various interventions attempted. Based on an analysis of existing studies, Whitt-Glover et al. (2009) recommend that interventions aimed at eliminating disparities in youth physical activity should 1) focus on girls, 2) maintain involvement in physical activities as youth grow older, 3) improve safety and access to recreational facilities.

Programming has been found to be an effective way of increasing park use, especially among underrepresented groups such as teen African American girls and teens of both genders;

Organized activity was found to be the only correlate to increasing physical activity among African American teens and adolescents. My research does take into consideration observations of programming provided by municipal parks; however, future research should more closely examine the patterns of activities offered and demographics of participants in order to ascertain to what extent they serve the surrounding community. Since most programming available is fee-based, this may be a significant barrier to participation among low-income residents. A study of low-income mothers in Canada did find reveal that fees were a barrier to their participation, even when there were ways in which to receive reduced or free programming when one could demonstrate economic need (Taylor 2006).

Despite their numerous potential benefits to users, many parks today attract few users, and not all populations benefit from their presence. Conceptions of, and practices related to health and wellbeing vary by culture and context (MacLachlan 2006). In order to create parks that attract female users of American Indian, African, and Asian heritage regularly, the norms guiding desired park behavior must be exposed and re-created in an inclusive manner. Implicit Euro-centric, rational, and instrumental values are dominant in American conceptions of exercise and the desired physical body. We must examine and redefine these values and open opportunities for alternative values to guide the desire for movement and wellbeing among American populations most adversely affected by a broad range of interconnected conditions affecting the cardiovascular and respiratory systems, diabetes, injuries, as well as depression, anxiety, and stress. The exercise industry acknowledges that low socioeconomic status is associated with low adherence to exercise programming and attributes high success to individuals who have high levels of self-efficacy, who have prior experience with exercise (or related activities, especially as youth or young adults), and who enjoy these activities (Bryant et

al. 2007). They fail to acknowledge the moral values, as well as societal inequalities, that limit exposure to activities as major factors in creating this disparity. Like leisure study research, the exercise industry focuses more on individual traits rather than social, historical, and physical factors that inhibit or encourage physical activity. One goal of this paper is to advance a discussion on how and why society will benefit from women actively reclaiming these public spaces as sites for a variety of activities that allow them to interact with others and/or their surroundings. With this study, I am not seeking to find deficiencies within individual park systems' management; rather, I highlight the cultural hegemony embedded within municipal parks and suggest ways in which park systems can break out of these limitations to provide numerous interrelated benefits to individuals, humanity, and the broader ecosystem.

Environmental Justice

Environmental justice has come to mean many things to many people since it became popularized in the late 1980s as people became increasingly aware and mobilized around the fact that communities of color were being disproportionately exposed to hazardous wastes. Race, controlling for class, was found to be the primary indicator for inequality. Since then, environmental justice activism and scholarship have broadened their scope significantly to include prevention, as well as acknowledging the intersections of race, class, gender, and geography in creating inequality in exposure to harm as well as access to "environmental goods" such as clean air, open space, and recreational facilities. I conceive of environmental justice as a framework for identifying and modifying the root and proximate causes of structural inequalities that are based on narratives of difference encompassed in the shifting and problematic notion of "race." It acknowledges the intersections of additional forms of social divisions such as gender,

place of origin, income, and age in reinforcing and amplifying notions of difference set within a worldview that emphasizes competition rooted in lines of thought such as social Darwinism. The environmental justice framework is rooted in the principles of precaution, prevention, and participation.

As an introduction to some environmental justice perspectives, I draw on excerpts from a document called the Principles of Environmental Justice, composed at The First National People of Color Environmental Leadership Summit held in 1991. The principles demand "mutual respect" in creating public policies and restate the rights to self-determination and participation in decision-making. The principles call for "ethical, balanced and responsible uses of land and renewable resources" as well as "urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and providing fair access for all to the full range of resources." The "destructive operations of multinational corporations," and "repression and exploitation of lands, peoples, and cultures, and other life forms" are directly opposed. Education should integrate experiential knowledge as well as an appreciation of "diverse cultural perspectives." Finally, those who ascribe to the principles are directed to make life-style decisions that are meant to "insure the health of the natural world for present and future generations," which includes consuming the least amount of resources and producing as little waste as possible (The First National [1991] 2005).

Municipal parks are resources created under the guise of providing benefits to the entire population and are particularly relevant to the principles demanding "fair access for all to the full range of resources" and education (which is not limited to formal educational settings) that values "diverse cultural perspectives." I will revisit these principles as they have influenced my

research questions and recommendations. In some instances, the principles facilitate selection of concrete policy recommendations, while in other instances they provide an ideal goal toward which to strive even though there is no clear path as revealed by current research.

There are noticeable differences in the quality of park maintenance and facilities within park systems, as well as inequitable distribution and access to parks; however, these inequalities do not take place within a vacuum. These disparities expose larger structural inequalities that have been the focus of much environmental justice discourse. Recent scholarship has focused on inequities in access to urban parks and recreational facilities based on income, race, or ethnicity (Powell et al. 2004, Dahmann et al. 2010, Taylor et al. 2007, Abercrombie et al. 2008, Garcia et al. 2009), or gender and ethnicity (Ho et al. 2005, Cohen et al. 2007) in various US cities. These inequalities stem in part from conditions outside the parks.

Freeways, roads, railroad tracks, contamination related to industrial uses, and indigent populations that reveal America's vast social and economic disparity are some features associated with the most underutilized parks in this study. Studies examining the effects of noise exposure and traffic sounds indicate linkages between exposure to these sounds and responses varying from annoyance to increased stress responses, which may influence cardiovascular diseases and contribute to other health conditions (Babischa et al. 2001, Ouis 2001, Rylander 2004). In Curitiba, Brazil, park users identified vehicular traffic and other sounds from birds and humans: Sound from vehicular traffic was noted as unpleasant where birds and other "natural" and human sounds were generally described as pleasant (Szeremeta et al. 2009). Meanwhile, a study in Los Angeles that points to poor air quality in urban parks with enhanced exposure to ozone, NO_2 and $PM_{2.5}$ raises concerns about inequitable health hazards associated with increased

physical activity, making otherwise health-promoting activities detrimental to the health of low socioeconomic status park users (Su et al. 2011).

Transportation as a barrier to accessing parks has been noted among different ethnic groups. Lack of transportation was a significant constraint among African Americans visiting regional parks in Detroit, and distance and transportation were identified as barriers for Latinos and Asians in accessing well-maintained parks in Chicago (Ho et al. 2005, West 1989, Gobster 2002). In contrast to these studies that look at regional parks, I focus on municipal parks that are intentionally distributed throughout residential neighborhoods in order to be in close proximity to residences; therefore, transportation barriers are different, but still remain a vital issue to consider for smaller local parks due to the impacts of vehicular traffic on air and sound quality, parking space, and research that found that the most regular female users of one park reported walking and biking as their main modes of transportation to the park. Park visitors who drove to the park were less likely to visit the park frequently and regularly, compared to those for whom active transportation (walking or biking) was a convenient and preferred option (Mumford et al. 2005). Working class people's access to Golden Gate Park in San Francisco in the early 20th century was increased through the provision of streetcars and the widespread availability of bicycles (Weyeneth 1984).

I hope that this research contributes to broader efforts aimed at reducing environmental injustices and social inequalities related to both poor park conditions and low community use. The causes and consequences of park neglect are related to similar root causes and consequences of other environmental injustices. To implement improvements, an integrated approach that addresses these interrelated conditions from multiple vantage points is needed. The slogan "if you build it (or renovate it), they will come" is unlikely to work in all neighborhoods;

conversely, in other situations, it may not always be the case that if the community presence and demand is strong, that physical improvements will result from community efforts alone. In my recommendations, I provide a multi-layered approach to guide improvements in park physical conditions as well as the social cohesion and engagement needed for long-term successful utilization of municipal parks to benefit diverse communities.[8]

Methods

Although presence and distribution of parks is one way of considering equitable access to municipal parks, my study does not analyze park acreage relative to population; rather, it seeks to understand how small and medium-sized municipal parks are utilized. I focus on municipal parks located in census tracts at or above California averages for Asian, African American, or American Indian populations in three cities in the San Francisco East Bay area (Richmond, Berkeley, and Oakland). Are parks in these areas frequented by park users, or are they often empty? Do men and women visit municipal parks equally? When teens and adults visit the parks, are they sedentary, moderately active, or engaged in vigorous activity? What is the status of sanitation infrastructure (toilets, sinks, water fountains, trash cans) and soundscape in these urban parks?

These cities are located in Alameda and Contra Costa counties, which have a moderate Mediterranean climate with numerous micro-climates, an ethnically diverse population with a

[8] National and local studies have found inequitable distributions of parks and other facilities for recreation and physical activity based on socioeconomic status (SES) or race. Nationally, areas with higher percentages of African Americans were associated with a decreased likelihood of finding parks, open spaces, public pools, and bike paths. Increasing poverty within an area revealed fewer sports areas, parks, and bike paths. Taylor et al. cite a study in Los Angeles published in 2005, which found park acreage varied immensely when comparing census tracts where more than three quarters of the population was Latino, African American, or white: The presence of acres per 1000 residents was 0.6, 1.7, and 32 respectively. In another national study, block groups with higher SES were more likely to have facilities for recreation and physical activity than block groups with lower SES; additionally, presence of these facilities was associated with lower rates of overweight and increased reporting of moderate-vigorous physical activity (Taylor et al. 2007).

notable disparity in wealth, multiple public transit agencies, and many municipal and regional parks. The cities of Richmond, Berkeley, and Oakland listed a combined total of approximately 226 municipal parks.[9]

In order to focus on parks in neighborhoods with notable non-white populations, 65 parks were excluded because they were located in census tracts with white populations above the California state average (57.6%) based on the 2010 census. Other parks that had white populations at or above the state average were, however, included in the research population when the census data revealed that these areas also *exceeded* the state averages for Black, Asian, or American Indian populations (6.6%, 14%, and 1.7% respectively).[10]

Table 1. Distribution of Park Population and Random Sample by Size

Size Category	# Parks in Research Population	# Parks Included in Random Sample	% of Parks Observed Relative to Size Category	Approx. Distribution of All Parks by Size Category (%)*
Mini	56	14	25	36
Small	45	14	31	27
Medium	36	11	31	20
Large	14	5	36	8
Very Large	10	3	30	6
Total	161	47	--	--

Municipal parks follow "well-known prescriptions of park design," where predictable features are common among parks of certain sizes or types (Loukaitou-Sideris 1995). From the total research population of 161 parks, a random sample of 47 parks was selected for observation based on stratification by approximate size. Table 1 demonstrates that most parks fell within the

[9] Parks listed on official city websites for Berkeley (pop. 112,580), Oakland (pop. 390,724), and Richmond (pop. 103,701) were included in a database containing information such as address, size, and features of the parks (as available). The cities and towns located adjacent to Berkeley, Oakland, and Richmond with fewer than 100,000 residents in the 2010 census are not included (e.g. El Cerrito pop. 22,363; Albany pop. 16,145; Alameda pop. 73,812; Emeryville pop. 9,866). Parks identified for the city of Berkeley included 53 parks, Oakland 121, and Richmond 52, although these listings were not necessarily accurate representations of parks currently accessible to the public (or restricted to after school use).

[10] Addresses for each park were entered into the US Census Bureau's website American Fact Finder to determine which census block group and census tract included the park address. The 2010 census data question regarding "Race, Combinations of two Races, and Not Hispanic or Latino" (QT-P4) for the block group (roughly consisting of approximately 1,000 residents) was used to identify percentages of the population reporting to be White, Black, American Indian, Asian, Pacific Islander, and Other for each census block group (US Census Bureau, 2011).

smallest size categories, and there were fewer large and very large parks. In order to ensure sampling of parks of all size categories, approximately 25-36% of parks within each category were selected for inclusion in the study sample.[11]

Parks were grouped into geographic clusters to facilitate sampling. Clusters were assigned numbers, and numbers generated by the Research Randomizer determined whether the cluster would be sampled on a weekday or weekend. Seven clusters were selected for weekday observation and five clusters for weekends: three Sundays and two Saturdays. Weekday clusters were assigned a day Monday through Friday for observation. Weekdays and weekends are treated slightly differently in their sampling to reflect a more generally constrained (shared) work schedule on weekdays and generally more unstructured time on weekends. Each park in the weekday sample was visited two to four times: between 7:30a-11:30a, midday between 11:35a-1:30p, afternoon between 1:35p-5:30p, and evening between 5:35p-sunset (approximately 8:45p). One to three observations were recorded on weekends during three time periods: morning (7:30a-noon), afternoon (12:05-5pm), or evening (5:05p-sunset). Visits to mini, small, and some medium sized parks each lasted approximately 20-30 minutes while larger parks observed at multiple vantage points were visited for longer durations. A map of the selected parks and the clusters (represented by the shaded areas) is presented in Fig. 1 below.

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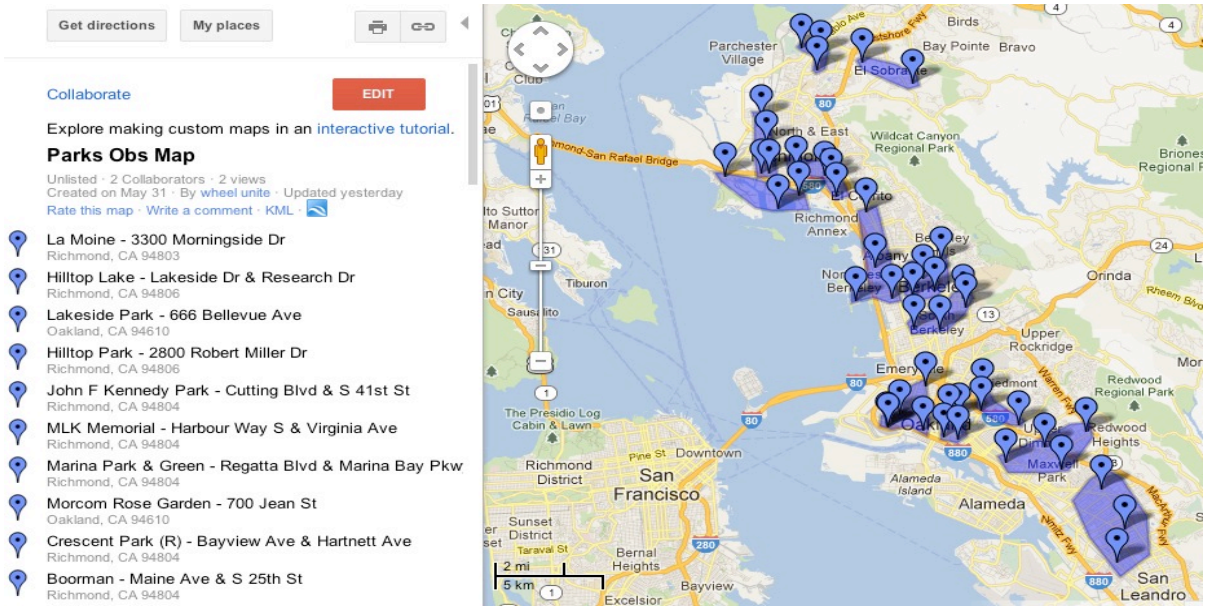
[11] While Berkeley and Richmond provide acreage of their city parks online, acreage for Oakland's parks is not listed on a city website; however, much of this information is available on http://www.seecalifornia.com/parks/oakland-parks.html. Twenty-one of Oakland's 121 parks do not have acreage listed; therefore, their size was estimated by comparing satellite images or first-hand experience to other parks where acreage was known. Fifty-six parks included in the population are categorized as "mini" because they consist of less than an acre. These mini parks often include play areas for toddlers and/or youth and places for sitting (benches and picnic tables), and may include grassy areas or developed plazas. Forty-five parks are 1-3 acres in size and are labeled "small." Small parks are often roughly the area of a few city blocks. They often include a few courts (e.g. tennis, basketball), a play area for small children, a grassy lawn, and a few areas for sitting or eating. Medium parks generally include the same amenities as small parks, but to a larger extent i.e. four courts instead of one or two. Thirty-six parks of 3.1-7 acres are classified as "medium" while 14 parks exceeding 7 acres make up the "large" category. Large parks generally include larger grassy areas, more sports fields, or an increased number of amenities (yet of similar type) than their smaller counterparts. Finally, 10 parks made up of more than 14 acres are identified as "very large." Parks were selected using numbers generated by the Research Randomizer website, which "is a free service offered to students and researchers interested in conducting random assignment and random sampling" (Urbaniak and Plous, 2011).
*The total number of large and very large parks may be underestimated because size was not estimated after parks were initially identified as one of the sixty-five parks to be excluded from the research population based on census data. Many of these parks were located in the affluent hills of Oakland.

Fig. 1. Map of Park Observation Sample and Clusters



A few parks that were listed on the city websites were not accessible to the public at all, or had incorrect hours of operation. Joint-use parks (Oakland) that are shared with schools were not clearly indicated, so web users were not informed that the parks were not available to the public during school hours.

For 15 minutes, park users were observed (from primarily one vantage point generally less than 20 feet in diameter) and their level of physical activity as sedentary, moderate, or vigorous was recorded on a modified System for Observing Play and Recreation in Communities (SOPARC) method (McKenzie et al. 2006).[12] The form included as Appendix A. The park was checked for the presence and status of restrooms, water fountains, trashcans, parking, and other amenities. Other conditions, such as temperature, humidity, types of sounds, and average and peak decibel readings were recorded. The temperature, humidity, and decibel readings are to

[12] Based on the SOPARC categories, slightly less stringent definitions of moderate and vigorous activity than those within the fitness industry are used. Sedentary activities consist of sitting, lying, or standing. Moderate activity includes aerobic activities such as walking or playing with a child or dog when it entails some walking, bending, or throwing. These activities are associated with only mildly elevated heart rates, but contribute to muscular strength, endurance, coordination, and/or flexibility. Vigorous activity includes activities that elevate the heart rate and challenge the cardiovascular, respiratory, and/or muscular systems. The researcher approximated the age and gender to the extent possible without interfering with the park users' experiences.

provide a general idea of the temperature and humidity, and are consistent with the climate of the area; however, it should be noted that the data collection for this project was geared towards being replicable as "citizen science."[13]

I chose to do an observational approach rather than interview or survey users as a way to increase my sample size of parks given my research resources available. This approach also had the benefit of having the least amount of interference with park users, allowing me to observe normal use patterns. Future research would benefit from seeking input from park users regarding their backgrounds and the factors that influence their use of parks.

One challenge posed by the observational approach to data collection is in regards to how accurately I could record park visitors' race, ethnicity, age, and gender. My notation of age was approximate, and therefore I do not go into detailed analysis of age except broad categories of teen and adult, even though my field notes do make an effort to group users by more specific age categories. I noted one instance in which a park visitor appeared to be transgender; however, I also must also stress that there may be a few other instances in which my categorization of gender may be incorrect due to the clothing and distance of park users from my observational vantage point.

Race is a social construct, rather than a biological category that can be determined by genotype. While physical appearances may in many cases reveal a great deal about a person's ancestry, culture, and experiences, they are often not useful in understanding a person's culture

[13] A basic outdoor thermometer purchased at a hardware store for less than $10 was used to gauge temperature and humidity. Although the researcher attempted to place the thermometer in the best discreet and shaded location during the 15-minute observation periods, in some instances it was difficult to find a suitable place without disturbing park users or drawing attention to the researcher. Decibel readings were obtained using a free iPhone application called dB Meter Pro. The main benefits of using this method to ascertain sound levels were its relatively innocuous presence during use, as well as the broader public's access to this type of tool; however, its main drawback is limited reliability in readings based on iPhone microphone and proximity to sound. Thus, decibel recordings are more useful when comparing sound across parks, rather than taking reading levels at face value, since the decibel reader was not calibrated against a standard decibel reader. I found that sounds within a foot of the microphone (such as writing on the observation forms) interfered with readings of the ambient sound, and therefore sound results are presented qualitatively rather than quantitatively.

or experiences, particularly in an American multi-racial society composed of many generations of people from around the world. Due to this challenge, I based my research area in census tracts that had the desired demographics, with an understanding from existing literature that most municipal park users live in close proximity i.e. within a half of a mile, to the parks that they visit. In my field notes, I attempted to note race, but was limited to occasions where there were only a few users nearby, and I had both the time and clear sight from which to do so. Although I did note racially diverse park visitors, I cannot determine the extent to which their demographics are directly representative of the surrounding demographics. I did note that many park users did appear to be of African, Asian, and American Indian descent. I do not present those data in this paper since they are subjective.

As a multi-racial person, I have become experienced at both blending in and standing out among groups of people who may or may not be of similar physical appearances. This ability facilitated my research to a notable extent. Visiting parks in census tracts at or below the state average for non-white populations took me to some familiar, and some unfamiliar and threatening neighborhoods. My extensive experiences travelling alone and spending many hours in parks have taught me to develop a keen awareness of my surroundings, partnered with a sense of defensible space, and body language that seeks to convey that I am neither a threat nor prey. Without this ability to have self-confidence in unfamiliar circumstances, I would not have pursued this research approach. I found that my fifteen minute observation period was often just enough time to collect the required data before other park users engaging in illicit behaviors began to take more notice of my presence, and become somewhat wary or threatened by me. In one instance at a mini park surrounded by streets, one a state highway, near a liquor store, I was approached and warned that unfamiliar faces make park regulars nervous, and are not

particularly welcome. I heeded that advice, and was back on my way on my bicycle, having only to put my binder in my bag and mount. By staying near my bike, using defensible space i.e. awareness of exit routes in relation to possible encounters, and my best judgment, I carried out my park visits with no incidents.

Results

Park visits were conducted primarily during the summer (June), with a few occurring in early fall (October) of 2012. Overall, the weather conditions were comfortable for outdoor activity, and although there are numerous microclimates in the SF East Bay the temperate weather experienced during the sample period is common throughout much of the year aside from a wetter winter season. This study does not reveal variations in park usage during inclement weather, when usage is expected to be lower.[14]

There were very few people in the parks in light of the population density of the area (see Figs. 2 and 3 below). According to the 2010 Census, most of the study area is included in the two highest density categories in California that range from 1,000 to 162,000 people per square mile, while approximately less than a third of the study area had a population density of 200 to 999 people per square mile. Despite being located in densely populated areas, the average number of teen and adult park users at all times in all parks was 11.1 per observation period. When young children are included, the average number of park users per observation period was 13. Excluding counts gathered from four special events (concert, adjacent farmer's market, fair/festival, and free meal distribution by Food Not Bombs), the average number of teen and

[14] Temperatures ranged from 60-87 degrees F, with the average temperature being 70 degrees F, and the median temperature 69 degrees F. Humidity ranged from 22-74% humidity, with the average being 57% and the mean 59%. The vast majority of observations took place during clear weather, with the most inclement weather being thick low fog preceded by a light drizzle. A light breeze was common, and wind-from moderate to strong and steady-was also present in approximately a third of the observations.

adult park visitors during each observation period drops to 6.2 for parks of all sizes. Children estimated to be under the age of twelve made up about 15% of all park users.

Fig. 2 Population Density of SF Bay Area

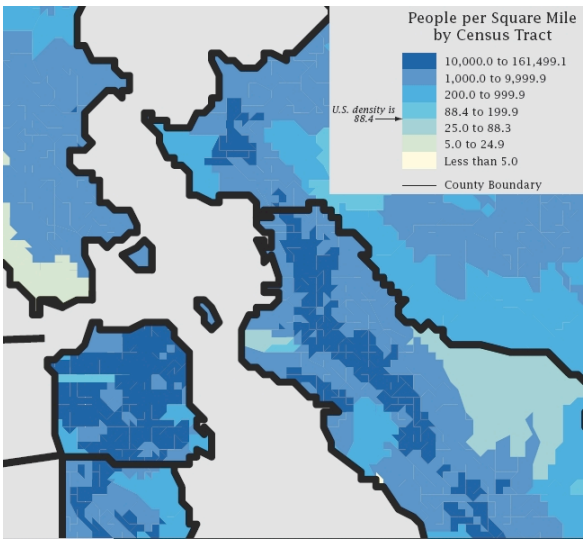
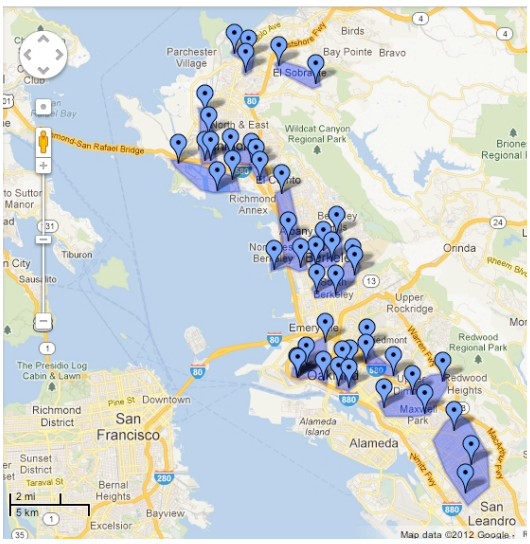
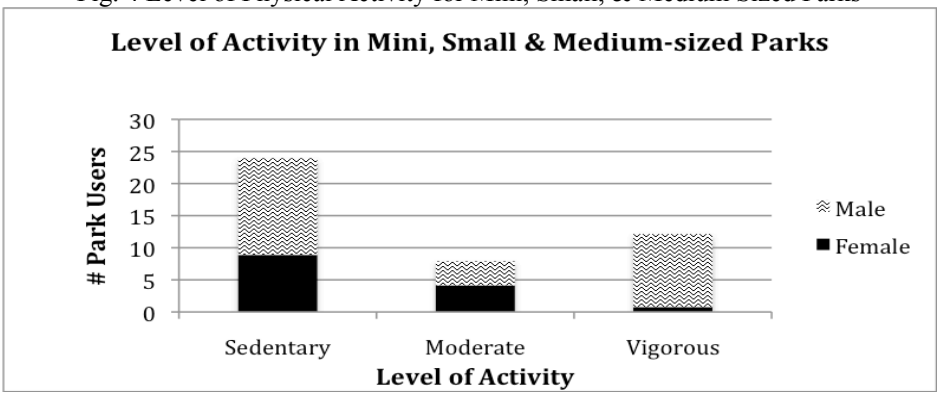


Fig. 3 Approximate Sample Area



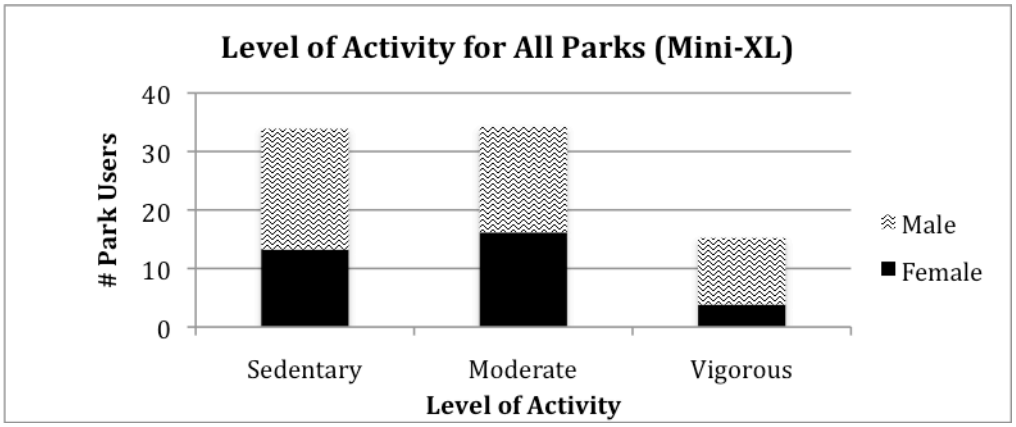
As stated above, most parks had few users considering the population densities of the surrounding areas. Sixteen parks that had lower than the study average of 6.2 visitors per observation period (the average excluding special events) varied by size, neighborhood, and municipality; however, all lacked restrooms. Water fountains were also rare. The most underutilized parks were all located in tracts well above state average for African Americans. Most parks also had higher than average populations reporting themselves as "other," and six of the most under-utilized parks were in neighborhoods exceeding state averages for Asians.

Fig. 4 Level of Physical Activity for Mini, Small, & Medium Sized Parks



One hundred and eight observation periods of park users in Richmond, Berkeley, and Oakland, California revealed a tendency toward sedentary uses (Fig. 4); however, moderate or vigorous activity was present, but was generally restricted to males or teenagers (children under around 12 years old were not included in analysis). Women were slightly more likely to be moderately active (walking) in large and extra-large parks than smaller parks (Fig. 5), but in all size parks, men were much more likely to be engaged in vigorous activity. Also, recall that the sample size of large and extra large parks visited was fewer than the number of smaller parks despite each sampled size of park representing approximately 30% of the entire population of parks (Table 1). Since the number of large and very large parks sampled was very small, I focus my analysis on the smaller and medium-sized parks. Generally, however, the larger parks (especially with water features) did have more women present: They were often walking, and sometimes biking or running. Parks near large bodies of water with continuous pathways did tend to attract a wide array of individuals and groups of people spanning age, background, and gender engaged in walking, running, and biking. Overall, many park visitors were accompanying children or dogs.

Fig. 5 Physical Activity for All Parks (Mini-XL)



Observations of municipal parks in the urban San Francisco East Bay revealed that there was actually very little diversity in the types of activities that take place in these spaces. (This finding also aligns with another study in Los Angeles [Cohen et al. 2007].) Frequent activities observed in parks included sitting, eating, sleeping, supervising or interacting with children and dogs, and walking. Running, biking, and sports such as basketball, soccer, and tennis were observed in fewer instances. There were only isolated observations of activities such as throwing a frisbee, running with a football, hula hooping, and jumping rope.

Sitting was very common, and is not surprising when one considers that the first urban parks were primarily intended by their creators as places for quiet contemplation to escape the noise and congestion of industrial urban centers. Christian values also emphasized parks as spaces for wholesome family recreation, with gender and class influencing who should participate in certain activities.

Progressive Era reformers saw urban parks as sites for improving the quality of life of recent urban immigrants, and/or as important spaces through which urban immigrants could be integrated as Americans sharing common values and pursuits; meanwhile, urban elites utilized the first large parks as sites for their horses and carriages. Today, it is common to find women in playground areas where their primary activity is related to overseeing children in facilities designed specifically for children only.

During the first few decades after urban parks were created, cities struggled to control rowdy behavior. It was conceded that vigorous activity could also be another valuable park activity (primarily for children and males). In response, sports fields and playgrounds were built in order to encourage certain activities. Current observations also reveal continuing effects of this design: Sports facilities (such as courts and fields) are common features of urban parks, and

were primarily utilized by males. Walking or promenading were socially acceptable behaviors among initial parks proponents, and these appear to remain a predominant example of an acceptable use of parks; however, the smaller size of many municipal parks does raise the question of their desirability for such activities that emphasize locomotion. Walking and jogging were most frequently observed in the larger parks that were near large bodies of water. Bike riding was a vital source of transportation that increased working class access to San Francisco's Golden Gate Park after it was built, but biking is restricted in one municipality in this study, which prohibits all bike riding in city parks. These results are similar to findings in research involving other cities.[15]

My results revealed that adults were more frequently observed than teens. There were only about five parks where there was a higher teen presence, and most of these parks had organized activities or had a specialized purpose, such as a skateboard park. For comparison, Cohen et al. (2007) found that in Los Angeles a third of park users were categorized as children, a fifth were adolescents, forty percent adults, and less than five percent seniors: Relative to census data on population distribution, adolescents were overrepresented and seniors over 60 years old were underrepresented.[16]

The lack of variety in activities taking place in parks provides many opportunities to consider what types of activities are not being pursued, especially in reference to pursuits that

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[15] For a review of the literature, see Krenichyn, K., "Women and physical activity in an urban park: Enrichment and support through an ethic of care," *Journal of environmental psychology* 24, no. 1 (2004): 117.

[16] It should be noted that age results are rough approximates since park users were not asked to self-identify; rather, I recorded ages based on my observations, which ranged from nearby to twenty or more feet away, and were influenced by attire, body language, and activity to some extent. Since there may be people who were miscategorized, it is more accurate to say that there were more adults present than youth or seniors. Cohen et al. (2007) used the System for Observing Play and Recreation in Communities (SOPARC) method for observing users in eight large public parks with recreation centers in low-income, high-minority neighborhoods (relative to national averages) in the City of Los Angeles. Although Cohen et. al. do not categorize the parks by size, their average park had twenty observation sites, indicating that they do not focus on the smaller parks that are the focus of this present study, which includes mini parks of less than an acre, or other small and medium-sized parks of up to seven acres. Cohen et. al found that about two-thirds of park users were sedentary. Males made up the majority of park users (62% compared to 38% females), and they were twice as likely to be engaged in vigorous activity than females (19% compared to 10%; 16% for males and females).

occurred in previous times or other places in municipal parks. Dancing, creation of community pageants, and regular informal gatherings for political speech, for example, are some activities that have been recorded as occurring in other municipal parks that were not observed in local municipal parks in this study. While some of these activities do occur in parks, they were not widespread, nor common enough to be captured. Certainly, the Occupy Movement during 2011-2012 encouraged many people to camp out and utilize parks for gathering places for political activities, but these activities were generally an exception to widely held notions of acceptable park usage. It is beyond the scope of this paper to investigate this topic properly, but the subject of municipal parks as vital sites for political speech and organizing, for example the Black Panther Party and Black Student Movement activities in DeFremery Park in Oakland during the late 1960s-70s remains an important topic for future consideration.

Despite research that has shown programming to be the most effective way to increase park usage among African American teen females in San Francisco, I did not observe any programming offered by the city for park participants outside of recreational centers, with the possible exception of one park and recreational center, where there was a BBQ for teens taking place. During this event, most participants were sedentary or moderately active, with a few hitting balls in a tennis court, and a few others throwing water balloons. City programming brochures reveal that activities such as dance, stretching, and martial arts are offered; however, these activities are usually held inside of buildings and require registration and a fee from activity participants.

Public spaces, including parks, are both hailed and condemned as places where people from different economic and class backgrounds may intermingle. Park users in the East Bay area frequently encounter other park users who are apparently indigent and who utilize the park as a

refuge. The size and presence of other park users may also be important factors for perceptions of safety among park users who encounter indigent people in parks. One or more indigents were present in parks during thirty-three observations, and of these, there were eight observations where the park had numerous (more than five or six) indigents present at one time (primarily in two parks in Berkeley). Most indigents were seen sitting or lying. Some were seen collecting recycling in the park, or passing through with recycling collected elsewhere. Several others were observed socializing in pairs or groups, with or without the presence of beverages concealed in bags. As an exception, during one morning observation, one indigent in a park with an extremely high presence of indigents was seen jumping rope, which lasted about one minute.

The overwhelming presence of sound from vehicles significantly alters the experiences in urban parks. It is an aspect of the environment that calls for reasonable and equitable management that is directly related to use; however, sound has been largely neglected as an area for participatory negotiation in America. Although regulations exist to limit the amplification of sound and music in parks, and event planning in urban parks is restricted in part due to concerns over sound affecting nearby neighbors, I propose that an environmental justice approach to park management calls for a reevaluation of how we acknowledge and manage sound in urban parks as they facilitate or inhibit certain uses.

As mentioned earlier in this paper, parks have been conceived of as a space for quiet contemplation since their inception. As early urban park managers realized that park visitors wanted to use these spaces for more physical or social behavior playgrounds, sports fields and other amenities were added. Today, parks are frequently categorized as “passive” or “active” parks based upon their intended purposes. Many small pocket parks tend to be categorized as passive spaces where one can enjoy the park quietly as they sit. Yet, these conceptions of parks

do not reflect the current soundscape and experience of park users today. It is extremely uncommon to find a location where the sound of vehicular traffic is not a noticeable and regular feature of the soundscape, which can influence park visitor's experiences.

My observations revealed that the sounds most commonly heard in urban parks included the steady hum of traffic as well as the sound from individual cars, trucks, motorcycles, or buses. The vast majority of observation locations featured sounds from individual cars or the hum of vehicular traffic on a busy road or highway. Other transportation-related sounds included those from freight and passenger trains, planes, and helicopters.[17]

Sound may be a proxy indicator for impaired air quality due to mobile sources, and the soundscape can also influence user's experiences positively or negatively. Park users in Curitiba, Brazil frequently mentioned noise from vehicular traffic as present in parks, and this sound was identified as unpleasant (Szeremeta et al. 2009). Meanwhile, sounds interpreted as undesirable noise generates physiological responses that can be detrimental to health, particularly raising blood pressure and stressing the cardiovascular system (Rylander 2004).

Similar to park users in Curitiba, I noted the sound of birds, although with less frequency than the sound of traffic. Birds (mostly crows, seagulls, pigeons, and some small songbirds) were heard during 56% of the visits, with about 16% of this percentage (10 observations) having notable, constant, or a variety of birdsongs clearly heard throughout the observation period. The remainder of bird sounds were background or intermittent. The moderate and strong bird sounds were located in five different parks. Voices of park users, sounds associated with sports or

[17] The sound of cars nearby was noted during sixty-four observations (two being very loud), and the hum of traffic was also noted forty-two times (eight being moderately loud and four very loud); however, the distinction between the sound of a nearby, individual vehicle and the constant hum of traffic on a busy road or freeway was not consistently noted during the early observations. During 30% of the observation periods, the sound of planes was present. Freight or passenger (Amtrak) trains were heard during 10% of the observations. In an additional 6% of observations, train whistles were heard, and another 5% of observations featured sounds of a distant train. During 8% of observations periods, the sound of BART (Bay Area Rapid Transit) trains were noted. Helicopters were heard during 4% of the observations periods.

activities, and music were noted with less frequency and reflect the low rates of park use and limited variety of park activities.[18]

Maintenance varied among parks, with a few notable parks that were particularly poorly maintained in census tracts with high African American populations. One park that was recently refurbished by non-resident volunteers with a new play structure and basketball court was directly adjacent to a large industrial facility (Figs. 6 and 7 below); meanwhile, a sprinkler at this same park was broken leading to water pooling near the sprinkler and grass further away turning yellow (Fig. 8). A large police van is visible and regularly parked near this park.

Fig. 6 New Play Structure at Park Adjacent to Industrial Facility

[18] The sound of dogs barking in or near the park was recorded during 10% of the observations. Wind blowing (alone and in trees or dropped leaves) was also heard. Adult voices were noted during 44% of observations, kids' voices while playing during 20%, and angry shouting in or near the park heard from 4% of observation locations. Sounds associated with sports were present in 17% of the observations: The majority of sports-related sounds were associated with basketball (10), with two instances recorded for each baseball, soccer, tennis, and skateboards. Music from inside the park was noted during 9% of observations, and consisted of acoustic guitars, a portable boom box stereo, church bells, and live bands or djs amplified for special events requiring a permit. In an additional 7% of visits, music from near the park was noted, and primarily consisted of amplified music or radio (sports broadcasting) from a neighboring house or commercial venue. In one instance, there appeared to be a dance lesson or practice for young Latina/o adults (for something along the lines of a quinceañera) taking place in a driveway directly across from a medium-sized park. Music heard from a passing vehicle was noted during 4% of the visits, and includes a few instances of ice cream trucks in the area.

Fig. 7 Park Adjacent to Industrial Facility

Fig. 8 Broken Sprinklers at Same Park

Availability of running water—drinking fountains, toilets, and hand-washing facilities—varied by city, size of park, hours (time of day), and neighborhood characteristics. See Table 2 for details on sanitation facilities. Fewer than half of the parks provided drinking fountains: In a few instances, the bowls were clogged with sand or decaying organic (food) matter, and one fountain was not working at all. Just over half of the parks had toilets available, less than a third had toilet paper stocked, and less than a sixth provided soap for hand washing. In Oakland, the municipal code inhibits permitting for bathrooms in mini-parks.

Table 2. State of Sanitation Facilities in Parks

Size Category	*Parks Visited*	*Drinking Fountain*	*Presence of Fountain (%)*	*Toilet*	*Toilet %*	*Soap*	*Soap %*	*TP*	*TP %*
Mini	14	7 (1c)	50	4	29	2	14	2	14
Small	14	5	36	8 (3P, 1lh)	57	1	7	4	29
Medium	11	5 (1c, 1nw)	45	7 (1C)	64	2	18	3	27
Large	5	3	60	5 (2P)	100	3*	60	4	80
Very Large	3	2	67	2 (1P)	67	1	33	2	67
Total	47	22	47	27 (6P)	57	8	17	13	28

c – clogged; nw – not working; P – portable; lh – limited hours; C – closed during observation; *2 cases soap and 1 presence of sanitizer

The availability of sanitation infrastructure is important for men and women, but may be particularly influential in constraining women's use of parks, affecting their choice to visit a park or the duration of their stay. Although public urination is legally restricted among men and women, it is socially more acceptable for a man to urinate in public if there is a tree or semi-private space. The lack of restrooms in public parks limits park use by causing people to leave the park in search of facilities. I observed in one mini park a family that had to leave in order to walk home for one small child to use the restroom--interrupting the play of the other children and accompanying adult. Even when the home is nearby, this interruption has the potential to cut short many visits. Meanwhile, public health is greatly improved through the provision of drinking water and hand-washing facilities as they promote hydration and reduction in the spread of disease, which is particularly relevant where you have children, seniors, and indigent populations touching the same surfaces.

Based on the environmental justice principles of "ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things," "urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and

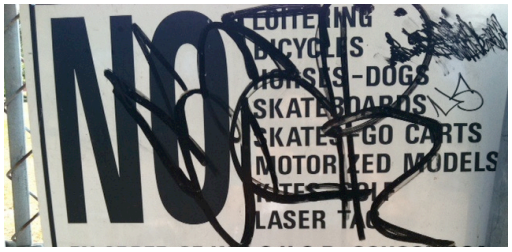
providing fair access for all to the full range of resources," and "insure[ing] the health of the natural world for present and future generations," it is recommended that municipal parks investigate the affordability of composting toilets and portable hand-washing facilities in parks where no restroom facilities exist, or where there are currently chemical-based portable toilets constructed of plastic (Anand and Apul 2011).

Based on the one hundred and eight observation periods, there is little to no system for enforcing park policy, aside from city police responding to a complaint. (I did not make visits during hours during which the park was closed, so I did not attempt to observe the extent to which park hour regulations are enforced). Only parks with recreation centers were staffed, and in these instances, the staff was primarily inside the recreation center rather than outside in the park. A few maintenance workers were seen in a few parks, but they were occupied with their maintenance duties. Where park staff was present in a specific-use park that had particular safety gear requirements, staff did not enforce use of this safety gear among park users.

Although it was common to see violations of policy, particularly dogs in Oakland parks that are not designated dog-parks, dogs off-leash in Berkeley parks that require leash, or people drinking alcohol or smoking, there was no instance of enforcement of these policies. Based on non-study observations of parks, especially ones known to have a constant, high number of indigents present, city or other local police agents may issue citations for infractions such as drug or alcohol use or possession, but these cases are the exception rather than the rule. Based on my observations, there is little to no regular enforcement of rules in most parks. The one exception occurred in a park with an extremely and unusually high presence of indigent users. Further research into enforcement of park rules, particularly equity issues related to selective enforcement, is needed. This non-enforcement of rules that probably don't make much sense to

most park users in the first place facilitates a disregard for the creation and enforcement of necessary and relevant policy. Rules may be interpreted as irrelevant and unmonitored. If enforced, the potential problem of selective enforcement based on the deviant and powerless status of certain park users should be examined. Some violation of policy is facilitated by a lack on the part of the city to provide adequate signage. Oakland parks rarely had "No Smoking" signs, despite policy outlining that smoking is restricted and that signs should be placed indicating as such. Additionally, signs prohibiting dogs in Oakland parks were prominent in only a few instances, even though they are not allowed except in designated dog park areas.

Fig. 9 Sign Restricting Uses Obscured by Marker



Conclusion

What makes a good park? What roles do we want parks to serve? Municipal parks represent one of the few public commons available on a daily basis for many Americans, making them of vital importance for the wellbeing of humanity. Parks reveal a great deal about how we manage public resources and how people in positions of economic and political power have promoted cultural values in both overt and subtle ways. Parks can also be sites where we engage our senses and further our understanding of our relationships within the world in which we live.

Municipal parks are currently underutilized in the number and variety of users, as well as in the limited types of activities that are encouraged and acceptable due to decades of formal

regulation as well as informal norms. These parks hold significant potential for enhancing health and wellbeing of humans and the ecosystems upon which we depend. They can serve as sites for activities that further social cohesion necessary for advancing a participatory society in which members negotiate and have influence over decision-making regarding community norms. They may also facilitate physical activity in which individuals interact with the environment, enhancing a sense of connection to other life, and shaping environmental ethics.

Based on observations, I found that there were overall very few users of parks in the East Bay study area, particularly when one considers the number of people residing in the surrounding neighborhoods. Excluding special events, the average number of teen and adult visitors observed each park visit for all size parks was just over six people. Park visitors consisted of more men than women. Additionally, park activities were lacking in diversity. Most people were sedentary or participating in a limited number of moderate or vigorous activities such as walking or running. Men were more physically active than women.

Based on the principles of environmental justice, in an acknowledgement of historical and contemporary disparities, which have particularly adverse affects on women of color, and for the promotion of wellbeing for these women as well as the general population, I recommend three general areas for action to guide individuals, organizations, and governmental agencies.

First, municipal parks should provide additional free or sliding scale programming that integrates a wide array of activities, skills, and cultural perspectives. Existing programming in municipal parks departments focuses largely on indoor activities utilizing recreation centers rather than the outdoor parks. Programming for adults exists, but is fee-based. Additional programs should emphasize alternatives to current competitive sports options (such as dance and cooperative games). Staffing parks will create jobs and increase use among underrepresented

groups. Additionally, parks should evaluate their current equipment infrastructure and provide equipment that appeals to adults as well as children, such as swings for larger bodies. This may include creatively repurposing existing underutilized equipment, or seeking simple equipment made from natural (low processing, chemical input) materials. Since time constraints have been found by previous research to be a major barrier to outdoor recreation among women, providing equipment and encouragement for moderate to vigorous activities (such as jumping rope, hula hooping, certain types of dance), which can be done in small parks located near places of residence, could assist women in achieving health benefits associated with physical activity in shorter amounts of time. An array of activities or variations within activities allows people with different interests and abilities to participate and continue to participate over time as their abilities and interests change.

Space for these types of activities can be created in mini parks in areas that are not solely dedicated to children's play or picnicking. Patches of lawn and/or smooth, flat surfaces of an area 10' by 10' could accommodate a small group of people moving together. Placement of these areas should take into account women's preferences for space that is defensible and away from noisy streets with high-traffic volumes. Signage, equipment, processes for demarcating and acknowledging a group's use of the space in a way that will allow them to avoid intrusive or disrespectful passersby who seek to record or interfere, and programming that encourage women to try these activities in public parks are other ways to facilitate changes in park usage norms. Community pageants once served to celebrate local history and bring people together to envision desires for a shared future. Although pageants that flourished before WWII faced challenges in living up to their rhetoric of social inclusion, their goal was to advance social cooperation and acceptance. Parks should provide spaces for, and facilitate participatory creation of community

celebrations that value variety as well as an acknowledgement of interdependence. Providing creative outlets will allow residents to return to the creation of culture rather than sedentary consumption of mass entertainment. The US government is responsible for direct and indirect suppression of the cultures of minority groups, and municipal parks may serve as one way to facilitate a return to health-promoting practice of cultural activities such as games and dancing.

The status of park infrastructure and level of maintenance send strong messages to park users regarding concern for the public's needs and desires. My second recommendation is that parks must address the lack of sanitation infrastructure available to their users and provide adequate facilities and drinking water. The City of Oakland zoning code expressly prohibits restrooms in mini-parks and requires special use permits to build them in other small parks. Water fountains were uncommon in Richmond City parks. Overall, facilities in all cities were scarce and often lacking hand-washing facilities that could reduce spread of disease and improve public health. Shade structures and other seasonal infrastructure that block rain will allow park users to enjoy the facilities during rain or intense sunshine. Roll-up canopies and other structures may also increase the longevity of surfaces and equipment that age more rapidly due to exposure to rain and sunshine. Maintaining these facilities also creates additional staffing needs and provides jobs.

Finally, parks should actively participate in efforts to increase active transportation (e.g. walking or biking) to and from parks. In light of the sound and air pollution that arises from vehicular traffic, alternative modes of transportation, particularly active transportation, should be considered as viable ways to both reduce these environmental burdens and increase health benefits. To improve air quality, pedestrian and cyclist safety, and user experience of the soundscape, parks advocates must also seek to reduce vehicular traffic near parks where people

are encouraged to engage in physical activity. Active transportation and public transportation are also much less costly than ownership and maintenance of individual vehicles, making these transportation options more accessible and sustainable for low-income populations, as long as there are infrastructure and policies to facilitate, support, and encourage their use. These polices may range from municipal provision of bike and pedestrian infrastructure; financial resources to increase affordability, efficiency, and knowledge of active transportation; providing forums for education of all road and trail users to improve communication; and reform of traffic codes to prioritize pedestrian and bicycle right of way. Increasing physical activity and active transportation creates a positive feedback loop in that both can become more efficient and enjoyable as people engage in these activities on a regular basis.[19]

Action in the areas of programming, infrastructure, and active transport can greatly improve human and ecosystem health, as well as enhance societal cohesion in a way that values diversity. Municipal parks have great potential for improving quality of life including health and social cohesion, as well as creating ecological benefits that will further produce additional health benefits among humans and other species. Environmental justice principles demand that we engage in participatory processes that will allow current residents to have input into creating the regulations and norms that apply to public parks so that they benefit the entire populations, and women of African, Asian, and American Indian descent in particular. These groups have been significantly impacted by social and legislative actions intentionally aimed at modifying and restricting their physical activity and creative, cultural expression. Goals and paths to health and wellbeing vary by culture, and facilitating these goals for diverse populations requires that we bring to light and reconsider the underlying values that guide park design, programming, and

[19] To read more about health benefits associated with active transportation and physical activity, as well as factors that inhibit or encourage physical activity, see Sallis (2004) and Killingsworth and Schmid (2001).

maintenance. Emphasis on gender roles and the family unit must be acknowledged and revisited to suit today's multicultural desires so that facilities are not predominantly used for sports and playgrounds that serve primarily men and children. Inequality in health outcomes provides one glimpse into the effects of this disparity. Benefits gained among these women will also create benefits for their families and society as a whole.

Appendix A: System for Observing Play and Recreation in Communities (Modified) Form

Date_____ ***M T W Th F Sa Su*** **AM Mid PM Eve Time**_____ **Park**_____

Obs. Location_____

Temp_____ **Weather** _____ **Decibel (Av/Mx)**_____ **Sounds**_____

Restrooms: Y N Cond: (soap/TP) _____ **Parking: L S B** _____ **Staffed: Y N Organized Event: Y N**

Fountain: Y N Cond_____ **Trash Cans: Y N** ***Comments***_____

	Activity	Age						Activity Level		
		0-3	4-11	12-17	18-24	25-54	55+	S	M	V
1':										
F										
M										
2':										
F										
M										
3':										
F										
M										
Notes										

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Institute for the
Study of
Societal Issues

2420 Bowditch St. # 5670
Berkeley , CA 94720-5670

tel: 510-642-0813
fax: 510-642-8674

email: issi@berkeley.edu
web: http://issi.berkeley.edu