The Failure of LA's Great Outdoors:

A Study of Park Inequality and Public Health Outcomes in Los Angeles

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Living in Los Angeles, visiting a neighborhood park, and taking advantage of recreational space seems like a simple, uncontroversial activity. The ability to easily be in outdoor spaces is something that most will take for granted. As such, the distribution and availability of public parks is not an issue many urban dwellers think about. Yet, as with many contemporary issues in the United States, public park access highlights inequities across racial and socioeconomic lines. For lower-income neighborhoods and communities of color, park inequity is a symptom of, and the catalyst to a multitude of much larger problems. As the US's second-most populated city, one would hope that LA provides enough recreational space for all its residents. However, this thesis shows that most parks and other green spaces in LA are concentrated in wealthy, majority-white neighborhoods, leaving the remaining residents with unequal and inequitable access to what is commonly considered a public good and a human right. This creates a gap in public health, leading to higher reported rates of obesity, poor mental health, and general quality of life. Through new use of public funds, change in policy, and community-oriented design for urban parks, this inequity in Los Angeles can be a thing of the past.

One of the most significant, yet least discussed issues in the United States is public parks, and public land in general. While not a new issue, the Covid-19 pandemic has drawn more people into public parks because of isolation and quarantine restrictions. The ability to be outside in public space during the pandemic was not equally shared by all in the U.S. It would be expected that something as seemingly trivial as public parks would be plentiful in major urban centers. The lack of equitable public space is perhaps felt most severely in Los Angeles (LA), along both racial and socio-economic lines. Annually, the Trust for Public Land ranks American city's public park distribution on a 100-point scale. LA received 41, ranking 74th out of 100 (Simon, et. al., 2016). For a city whose civic pride runs deep, this should be disappointing. This problem is not new by

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any means, but in an era with increasing levels of income inequality and racial inequity, this is one area that deserves more attention and more solutions.

Unequal access to parks is not an issue unique to LA. Park equity affects cities around the world, but the outcomes and consequences of unequal access remain consistent. Infamous for high levels of density and a shortage of affordable housing, LA's park inequity strikes at lower-income populations and has the potential to lead to severe public health disparities between groups. Though this problem has been prevalent in the U.S. for decades, growing attention on this has presented a unique opportunity to implement new, pro-park equity laws. As will be addressed in the literature review, scholars point to historical discrimination in housing and zoning, and rapid suburbanization that have created the necessary conditions for this problem to exist (Gibson, et. al., 2019). Coupled with rising housing prices and increasing density of new housing stock, these factors compound on one another to restrict access to public space and result in disparate outcomes for public health between communities. Those resistant to addressing this may say that it is obviously an issue, but not a dire one. Recent data surrounding public health outcomes relating to physical activity prove otherwise. This thesis will look at how failed public policy and poor urban design in Los Angeles have established inequitable distribution of public parks, thus leading to disproportionately negative public health in affected communities. By conducting a case study of the fifteen different city council districts in LA we can reach a better understanding of why different neighborhoods have different outcomes, and what this has to say about broader social issues.

One area regarding successful approaches to public parks that cannot be ignored is good urban design. American cities tend to be more car-oriented, leading to wide streets, expensive suburbs, and a lack of walkability for urban residents. A profit motive generally influences such policy nation-wide and Los Angeles in particular. The design of American cities has its roots in commercialization, and the ability to have a multitude of businesses and shops on a single street, where cars can slow and "window shop" (Golicnik, et. al., 2010). The lack of human-facing design and walkability in cities is not something many think about, especially when it comes to how this affects public parks. When cities are emphasizing car usage, and actively rejecting human-scale design, this leads to suburbanization and density in urban centers. Public parks being available for every neighborhood become an afterthought when planners assume that parks can be reached by car in the suburbs. This negates the experiences and reality of lower-income neighborhoods and pretends that the socio-spatial exclusion of people of color in suburbs does not exist (Von Mahs, 2013). To solve this, there not only needs to be better design decisions for cities, but a complete overhaul of how public policy has approached this issue thus far.

This research aims to prove that there is a specific link between lower access to public parks and lower public health as a result. Factors such as urbanization/suburbanization, housing discrimination, zoning policy, and poor design have contributed to this in their own way and come together to create lower standards of living for lower-income communities of color. The research design of this paper is a case study of four of Los Angeles' fifteen city council districts (Figure 1). The four selected cases are council districts 4, 8, 9, and 11. Looking at both public park access and public health outcomes will give an understanding of how the issue can be handled. Both similarities and differences in policy can be seen through document analysis, observation, and historical research into existing laws. Contemporary approaches to solve the park inequity crisis may not be sufficient to fully understand the cases. Historical approaches to the problem can still have ripple effects that are felt by communities today, especially regarding housing. The negative effect that redlining, suburbanization, and higher density in urban centers has had on lower-income communities of color still exist today (Schneider, 2008). As such, it is important to take both historical and contemporary factors leading to park inequity into account. Overall, this thesis seeks to understand

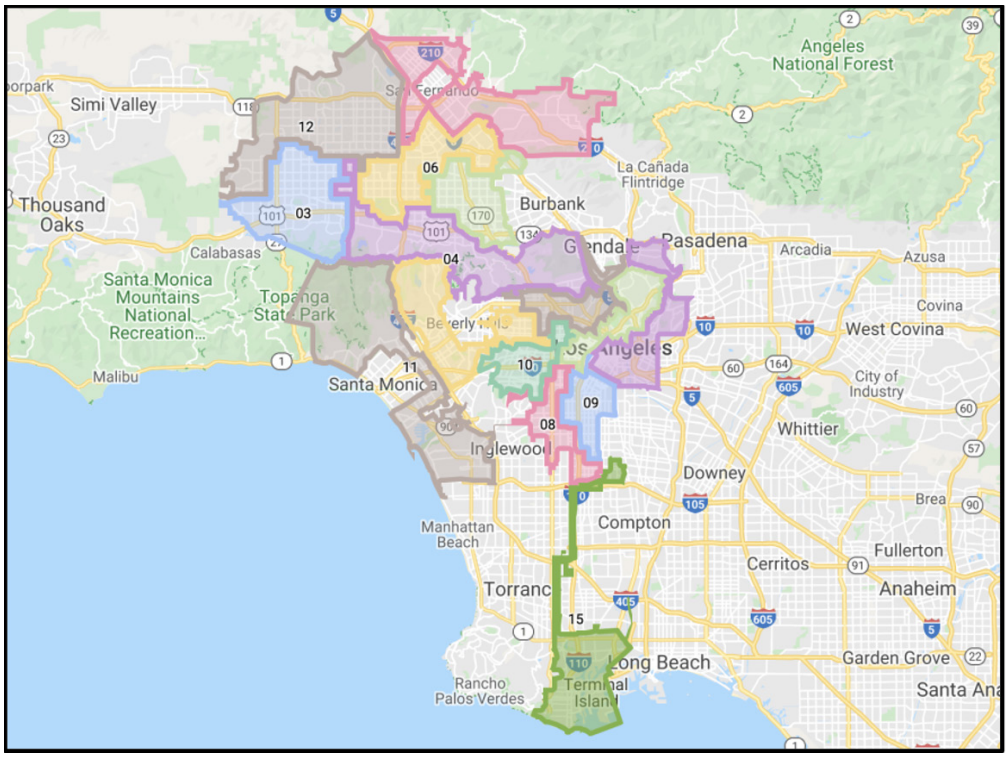
how the inequitable distribution of public parks in Los Angeles leads to different public health outcomes for the affected communities.

METHODOLOGY

The effect that these above-mentioned factors have on public health will be acquired through self-reported surveys as well as through previous research into such disparities. By understanding how exercise and recreation affect physical and mental health will create a greater understanding of why there are differences in health for neighborhoods that are park poor. By establishing that unequal access to public parks will create unequal health outcomes, this thesis can show failed urban design continues discrimination of communities of color and works to the advantage of the already privileged. Creating such a link can help inform future policy and design solutions to create more equitable and livable cities in the future. Such design solutions will be oriented around the most park-poor neighborhoods and improve access to public space for those who have been historically disadvantaged.

This thesis utilized a case study model to analyze the inequity of public park access in Los Angeles (LA), California and how this leads to poorer public health outcomes for the affected communities. I believe that a case study is the most appropriate method for this thesis because it is conducive to in-depth policy analysis that a topic of this scope requires. Other qualitative methods such as observational fieldwork or surveys would have been insufficient to properly collect the relevant data. While this is a case study of the current inequities in public park access, historical analysis regarding housing discrimination, public land use policy, and demographic change is necessary to properly explain the context surrounding the current situation, as well to provide meaningful policy solutions. Both comparing success/failure in

Figure 1



Source: Denkman, L., (2021)

providing public park access and comparing public health outcomes will require historical and contemporary context to understand how widespread and severe park inequity has become.

To understand this context, historical data surrounding redlining, housing discrimination, suburbanization, and legislative information regarding public parks have been collected. Historical documents and academic research into past developments will allow for an understanding of how the access to public parks has changed and adapted over time, relative to both housing and urban expansion. Contemporary data regarding potential legislative action and current demographic and housing data has also been collected. This will provide the foundational knowledge necessary to understand the root cause of modern inequities, as well as understand park inequity as it currently exists. This portion of the study seeks to show that this issue exists along divisions of class and race. Affected communities are expected to be lower-income and have most residents who are people of color. With both a historical and contemporary understanding of the issue, the case study will compare park-poor and park-rich areas and analyze the public health outcomes of affected communities.

Categorizing neighborhoods of either "park-poor" or "park-rich" will be based on collected data regarding how close residents of each neighborhood live to public parks. The specific metric will be "number of park acres per 1,000 residents". This approach will account for the differences in population and geographical size while still maintaining a consistent analysis of overall access to public lands. These same neighborhoods will also be represented by their demographic data to provide a wider understanding of the social context within which these issues arise. While numerical data will be explored to categorize neighborhoods as park-rich or park-poor, it is necessary to categorize these neighborhoods into successes or failures to better understand which residents of LA are better served by the government, and which are less provided for.

The main areas of public health analysis in this thesis, as follows: potential years of life lost due to cardiovascular disease per 100,000 residents, potential years of life lost due to diabetes per 100,000 residents, rate of childhood obesity as a percentage of the adolescent population, and self-reported adherence to specific CDC recommended guidelines for recreational activity. These four areas can be applied to both park-rich and park-poor neighborhoods to compare the success and failure of Los Angeles in providing easy access to public parks for all of its residents, as well as compare public health outcomes relative to the availability of green-space. Through this, the human cost of public park inequity can be explored.

This case study is, however, rather limited in scope, as it will not address the quality of each neighborhood's parks, only their quantity relative to population. This, in turn, can be used to conclude whether equity of access has been achieved. There are weaknesses in this approach as neighborhoods with few parks, but of high quality, may experience a higher standard of living when compared to a neighborhood with relatively many parks but of low quality. While these are subjective measures of analysis, applying broad assumptions upon a neighborhood, their demographic make-up, and their public health has the potential to be insensitive to these residents' lived experience. In that regard, this study will not draw conclusions that intend to target specific communities, ethnic groups, or any other class of person. When analyzing public health outcomes, conclusions and policy recommendations regarding exercise and mental health will be limited to the data provided and will not draw upon social stigma, assumptions, or stereotypes for any class of person. Given the subjectivity when measuring quality of life, this study seeks only to compare the availability of public parks and draw conclusions surrounding public health in the most objective way possible for the author. This study also relies heavily on the assumption that easy and equitable access to public land is a human right. As such, policy recommendations and proposals will seek only to expand that right to as many LA residents as possible.

Another limiting factor of this study is the

low level of external validity. Given the focus on Los Angeles for this case study, solutions, policy recommendations and park design proposals will be specific to LA. This does limit the ability of this study to apply to other cities, especially in different US states or countries. However, the issue of park-inequity, especially long divisions of class and race are not unique to Los Angeles. There is potential for transferring some of these recommendations and conclusions to the broader context of global inequities in public access to parks; adjustments will need to be made to fit each country, city, or community.

LITERATURE REVIEW

A plentiful amount of research exists regarding public parks, their distribution, and their effects on public health. Analyzing the history of Los Angeles' relationship with public parks throughout its expansion can help create a broad understanding of how the problem has been exacerbated to its current level. Many scholars agree that there is a significant link between health and exercise (Wolch, et. al., 2011). Studies into mental and physical health outcomes in relation to recreation and exercise have found a positive link between the two. Crucial to addressing this link is not only relying on individual responsibility to pursue a healthy lifestyle, but for the government to provide adequate opportunities for its citizens to engage in recreational activity to increase overall public health outcomes (Bedimo-Rung, et. al., 2005). Therein lies the issue of this thesis: the provision of this public space. Decades of housing discrimination and urbanization have left LA in a unique position of having significantly less park space in the areas that are the most vulnerable and in need (Pincetl, 2003). Even in park-poor neighborhoods, the design of what little public space available to them, leaves much to be desired. Scholars have shown that a broad lack of access to public parks falls not only on class divisions and socio-economic status, but on race (Boone, et. al., 2009). Literature on urbanization and suburbanization show that public policy regarding this issue, Prop 13, Prop K, the Quimby Act, and more, have failed to adequately solve this issue, thus leaving countless LA residents without easy access to public parks.

Historical and Modern Context of Public Parks in Los Angeles

When analyzing the literature surrounding inequity of LA public parks, the city's history with housing discrimination and expansion are inextricably linked to park distribution. This expansion relative to planning and other developed cities is explored in Kushner's A Tale of Three Cities: Land Development and Planning for Growth in Stockholm, Berlin, and Los Angeles. While many European cities engaged in urbanization through expanded social housing programs and creating dense but socially sustainable cities, LA's urban growth was intertwined with post-war suburbanization (Kushner, 1993).

In the aftermath of World War II, the population of Los Angeles increased dramatically, with more GI's returning to the United States to build a family. This was paired with a new influx of Mexican American workers moving to Los Angeles to seek jobs in a city growing with post-war industrialization. With migrant families entering a predominantly white urban space, the families of white veterans left and sparked rapid suburbanization in a phenomenon called "white flight" (Schneider, 2008). Scholars point to this as a turning point in LA's ability to provide equitable public goods for all its citizens. The most notable impact of white flight was the capital that left with the white, middle-class families (Robbins, 2020). As the wealthier, middle-class families left, so did the financial resources that they carried with them. This led to a quick decline in infrastructure for urban areas that were now dominated by minority populations. As redlining became common practice under the government sponsored Home-Owners Loan Corporation, many Latino and African American families were denied access to these newly developed suburbs (Duku, et. al., 2020). With no social mobility to help them escape lower-income communities, these people were stuck. This becomes relevant to parks when recognizing that funding for public parks can be tied to property value and the associated taxes. Literature in academia largely

agrees that since minority populations were essentially forced into lower-income areas, the funding necessary to build new parks would never have arisen (Perry & Harshbarger, 2019). When important goods like public parks, education, and infrastructure spending is often tied to property values, the relatively wealthier white families leaving the growing urban centers left poorer immigrant families with less revenue to sustain their neighborhoods (Robbins, 2020). This serves as a foundational point in park inequity. The original division between urban and suburban neighborhoods grows along racial, ethnic, and socio-economic lines and only worsens as this problem continues.

Modern Housing

With the new influx of non-white immigrants into Los Angeles, came more housing developments in the city center near job opportunities. With less capital than the new suburbs, these urban neighborhoods were mostly multi-family development units and housing complexes rather than single-family homes. While they were able to improve the efficiency with which people could be housed, it created one of the more significant barriers to public park creation: density (Carliner & Marya, 2016). A combination of less tax revenue resulting from white flight, and the sheer number of people that were coming into LA necessitated the construction of massive amounts of housing. Wherein potential residents of color were systematically excluded from majority white suburbs and pushed into denser communities of color concentrated in urban areas (McConnel, 2013). This acted as modern-day segregation, establishing racial covenants in the suburban areas that could enjoy the benefits of historically higher tax revenues and the public amenities that came with it. The remainder, and the majority, of LA residents constituted a lower tax bracket that was unable to secure more funding for public goods and services as their white counterparts.

The housing crisis does not only affect a small minority of people. It impacts those along every aspect of society. Even middle to upper class residents feel the effects of rising housing prices and low housing stock. Though those already vulnerable and disadvantaged feel the effects the strongest. The most visible of these populations are people experiencing homelessness (Marr, 2012). On this point there is relative agreement among scholars: homeless populations face perhaps the greatest hurdles in attempting to access housing (Urban Institute, 2007). The numerical lack of affordable housing, temporary housing, or direct government assistance for them is of course a factor in their obstacles, though this exclusion occurs at all levels of access. "Sociospatial exclusion" is a term coined by Von Mahs in his writing: Down and Out in Los Angeles and Berlin: The Sociospatial Exclusion of Homeless People (Von Mahs, 2013). The idea represented by this term is consistently expressed throughout the literature on affordable housing even if not by name. Centered on three main points (legal, service, and market exclusion), it encompasses the rejection of homeless people from society and relegates them to a cycle of poverty, while simultaneously excluding them from access to socio-economic opportunities (Von Mahs, 2013). While the ability of homeless residents to find housing is an issue that deserves more devoted study, this shows a lack of support for the most vulnerable populations. Scholars point to these failures to provide basic necessities for citizens as a cause of park inequity by excluding homeless people from the market and society at large.

A contemporary analysis of LA's housing market also shows little promise in providing equitable outcomes for public land use, which is inextricably linked to housing. Scholars seek to evaluate the LA housing market to determine factors influencing housing prices as well as provide policy recommendations to improve the situation, with special regard to public park distribution. The significant influences on price were found to be restrictive land use regulations, historical segregation, and high marketization; all of which will be discussed further in this thesis. Most low-income households, disproportionately people of color or people with disabilities, were either cost-burdened or severely cost-burdened (Gibson, et. at., 2019). Many of those low-

income households were at risk of displacement or homelessness. This lack of adequate housing left them with a shortage of tax revenue necessary to fund public parks, coupled with a lack of municipal interest on the issue due to high density developers would face. Policy recommendations were increase the affordable housing stock (particularly in communities of color), preserve current affordable housing stock with rent control measures, prevent the displacement of low-income and middle-income households, ensure and expand access to protected classes of people, and to increase community integration to combat segregation (Wolch, et. al., 2005). By addressing these core issues of housing and risk of homelessness for at-risk communities, expanded access to public parks would ensue in the form of neighborhood development.

Modern Zoning

Academia agrees that historic discrimination in housing have significant and wide-reaching impacts on disadvantaged populations' ability to access public space to the same degree as more privileged groups. Today, Los Angeles still contends with the aftermath of its discriminatory housing practices of today, however the effects still have far reaching consequences. With the city being divided into fifteen city council districts, each one represented by a city councilmember voted in by the residents of each district, there is much room for political interference when trying to create equitable cities.

The restriction to public parks begins at the highest levels of government in LA, appearing in more subtle forms than the out-and-out racism of redlining and former policies of housing developers; it takes new shape in zoning laws. Exclusionary and inclusionary forms of zoning impact urban design in ways that uphold forms of discrimination in public park access. Specifically, zoning for industrial and business centers are disproportionately placed in lower-income neighborhoods of color. While residential and recreational zoning too often is for more white, suburban neighborhoods. Scholars conclude this to be a form of environmental racism (Mukhija, et. al., 2010). By restricting access to more environmentally friendly and health-friendly zoning, people of color and lower-income families are relegated to living near industrial plants and multi-lane highways that increase their exposure to harmful chemicals and will potentially lead to harmful health effects that this paper will explore more in-depth (Mukhija, et. al., 2010). This is in stark contrast to more wealthy and traditionally white neighborhoods that have been zoned for residential developments. By being more environmentally and health-friendly, these neighborhoods are saved from harmful exposure to waste and toxins from industrial sites and heavy-traffic roads and highways.

On the opposite side of municipal zoning, Mukhija and other authors seek to analyze if inclusionary zoning is an effective and efficient method to increase the ability for housing policy to improve access to public parks. They conclude that it is not statistically significant in improving affordable housing stock or park access, mainly due to in-lieu fees (Mukhija, et. al., 2010). These fees have been addressed by many authors and are when developers may pay a fee to the government rather than be required to build several affordable units or a set number of park acres. This undermines the city's efforts to provide affordable housing. Given the small effectiveness of inclusionary zoning on lowering housing prices (but not to the level of median affordability) it should be a part of a comprehensive housing strategy, not the only policy action taken. Singular actions cannot improve access to public space by way of affordable housing since the issue intersects multiple areas of municipal governance, a multi-faceted approach to address this problem must happen, and zoning policy is a foundational step towards that. As such, these are not only zoning problems that lead to less access to green space and therefore poorer public health, but academic literature further ties this to the idea of poor urban design playing a role here (Loukaitou-Sideris & Stieglitz, 2002). The design of urban spaces is dictated by municipal zoning. The problem of public park access cannot be adequately addressed until zoning laws change in favor of people-oriented design and open traditionally disadvantaged communities to more

environmentally and health-friendly zoning, such as public parks.

Enacted Policy Concerning Public Parks

The above factors: suburbanization, urbanization, density, and housing discrimination, and poor zoning, all contributed to the inequity of public parks by creating the modern housing crisis. Coupled with failed public policy to rectify the problem, the housing crisis has partially led to a severe lack of public space, especially for low-income communities of color. There's been a multitude of policy approaches to attempt to solve this issue. However, few have made a positive impact. One such approach is to increase affordable housing through a voucher program called Section 8. Scholars cite Los Angeles' Section 8 voucher program and changes to zoning laws as solutions to the housing crisis, and by extension the public park crisis (Nichols, 2001). While marginally successful, Section 8 has been unable to meet the rising demand for housing, especially when accounting for the Covid-19 pandemic. With a waitlist that is thousands of applicants long, there is no viability for Section 8 for someone in need of emergency housing or on the verge of homelessness. Kurwa focuses on the idea of voucher programs being renter centric (Kurwa, 2015). This scholarship seeks to examine how tenants from low-income neighborhoods integrate socially and economically into middle-income suburbs through the Section 8 voucher program. These tenants generally experienced social exclusion and racial discrimination both socially and through attempts at gaining employment, causing them to eventually withdraw from the community. Being geographically far from employment opportunities limited economic mobility. Kurwa concludes that the limits of Section 8 translate geographic rental opportunities into social and economic integration, severely limiting the ability to provide effective and gainful affordable housing in Los Angeles County. By denying meaningful access to affordable housing, even in traditionally suburban spaces, scholars conclude that access to parks can never be achieved for a wide range of the citizenry (Loukaitou-Sideris & Stieglitz, 2002). Developers are required to build a certain number of affordable units in new developments, but this small number of homes is incapable of meeting demand when relying solely on market forces (Kurwa, 2015). Rising construction costs, pandemic related work slow-downs, and loophole fees that can be paid in place of building affordable units and park space all negate this as a viable solution to the crisis. When analyzing loopholes that emerge with housing and park developments, scholars point to the Quimby Act as a clear hurdle to achieving equity.

The Quimby Act was passed by the California State Legislature in 1965 and was enacted in 1971. It required housing developers to build a park or recreational space within 2 miles of the development or pay a fee in lieu of building the park (Wolch et. al., 2005). In theory, this would create more equity distribution of parks and help these communities. However, it disproportionately advantaged the white-dominated suburbs. Property developers were only building new apartment complexes and new housing developments in the suburban areas where they could charge higher rent. So, they were free to just pay the "in lieu" fees and avoided having to build new parks altogether (Wolch, et. al, 2005). Even when there were new housing projects being built in urban spaces, it is easier to avoid setting aside land in already dense areas by just paying the fees. The "in lieu" loophole allowed for this problem to worsen since more and more urban developments lacked recreational space.

Proposition K is another significant contributor to park inequity in Los Angeles. Prop K is a 1996 property tax that sets aside funds to be given out through an application-based grant for the sole purpose of funding public parks (Wolch et. al., 2005). The main issue with this is its ease of access. Park poor areas generally do not have very robust community-based organizations (CBOs) and lack the resources to adequately apply for these grants. The system favors higher-income areas with more social capital and more influential CBO's that annually apply for these grants. Those areas already have expansive public

parks, so most Proposition K's funds are not being used to build new parks, but to improve existing ones (Wolch et. al., 2005).

The most scholarly debate surrounding park equity is surrounding Proposition 13. Prop 13 mainly limited property taxes in the state of California. Passed in 1978, it froze the tax rate for any property built that year or before. The only way for those property values and their associated taxes to be reassessed was if they changed hands. This disadvantaged newer communities that were sprouting in the city and allowed more wealthy residents with deep familial roots to benefit from lower taxes. So, how does this affect park access? In an episode of his podcast "Revisionist History", Malcolm Gladwell addressed this very issue. While not a piece of scholarly research, the inclusion of park inequity in popular media highlights a shift in academia to pursue more equitable solutions. Gladwell points the blame towards one of LA's bedrock institutions: private golf clubs (Gladwell, 2017). The golf courses in Los Angeles take up roughly 2,300 acres, most of which is empty greenspace with few people utilizing it (DiMauro, 2016). Despite their prevalence and associated wealth, their property tax is stuck at the 1978 level, all because of Prop 13. Gladwell points out that despite new members being added to golf clubs on a regular basis, the city does not count that as a change in ownership (Gladwell, 2017). Therefore, the property tax rates of these clubs are never reassessed, creating a massive amount of private land that is exclusive to a small class of people (Gladwell, 2017). These clubs only pay a fraction of what their "true" property tax should be when adjusted for decades of inflation and increased property values. This leaves park-poor communities surrounding these clubs with a small tax base to support the already scarce parks.

Public Health and Exercise/Recreation

Research in academia finds a clear link between exercise and positive effects on an individual's health. There is ample scholarship addressing this issue already. What is specific to this thesis is the correlation between municipal provision of public parks and public health outcomes. However, the broader context surrounding public health policy regarding recreation and exercise is necessary to form an understanding of why improving park equity should be at the forefront of policy maker's minds. Looking at children in particular, studies have demonstrated that there was a significant increase in extracurricular physical activity at both educational and neighborhood settings when the opportunities were accessible (Wolch, et. al., 2011). Children often take advantage of these opportunities on their own accord when they are there. Such recreational activities led to reduced levels of childhood obesity, cardiovascular complications, and overall health outcomes for the participating neighborhoods. Research has demonstrated that in-school and after-school programs that provide opportunities for extracurricular physical activity increase children's level of physical activity and improve other obesity-related outcomes (Wolch, et. al., 2017). While this is a study limited to the effects of recreational activity on the health of children as it relates to school and neighborhood-based programs rather than municipal intervention, the evidence holds that higher access to recreational opportunities will lead to better health outcomes overall. Scholarship even points to solutions addressed in this thesis as influencing one's health. Characteristics of the built environment have been shown to support physical activity if they are created with good design principles in mind (Coen & Ross, 2006). Multiple design strategies that are implemented in public spaces aim to increase physical activity through changes in the built environment itself. Scholarship points to specific principles that can be utilized by planners to improve access to park-poor neighborhoods with the expressed interest of increasing positive health outcomes (Coen & Ross, 2006).

The most significant purpose of these studies was to increase the percentage of residential areas that have easy access to recreational spaces. Urban design and municipal planning had had a significant impact on communities' ability to engage in recreational activity. The negative health effects that come with this lack of access implores that the scholarship continues to grow

on how to better solve this issue. (Kakietek, et. al., 2009).

Further scholarship agrees that one of the most significant problems in the United States is the rise in childhood obesity, and that access to public space plays a role. The CDC states that roughly 18.5% of American children are considered obese and the number is rising (Hales, et. al., 2010). Given this issue's severity, it is worthwhile to appreciate the effect that park access has on this. A study by the University of California, Los Angeles found that adolescents between the ages of 12-17 living in areas with a high concentration of poverty in their neighborhood experienced a significant decrease in physical activity, especially when fewer parks were near them (Figure 2). Similar patterns of physical activity were found when analyzing adolescents aged 12-17 but qualifying for the unemployment rate (Figure 3). As with neighborhood poverty, children's physical activity decreases. Other studies have analyzed a much larger sample size, Los Angeles County, finding near identical results (Wolch et. al., 2011). The scientific studies clearly show that more access to public parks and recreational space will help lower rates of childhood obesity. The wealth of literature on this topic is not divided about the root causes of inequitable public park distribution, nor the effects that little recreational activity has on public health.

RESULTS: PUBLIC PARK DISTRIBUTION IN FOUR OF LA'S DISTRICTS

Los Angeles - A Broader Perspective

In conducting this study, the demographics, park acreage, reported public health outcomes, and socio-economic factors were collected for each of Los Angeles' City Council Districts, and the city. By establishing a baseline of data for LA as it compares to other comparable American

Figure 2

Physical Activity and Park Access by Concentration of Poverty in the Neighborhood, Adolescents Ages 12-17, California, 2003

Concentration of Neighborhood Poverty	Regular Physical Activity %	No Physical Activity %	Park within 400m of Home and Self-reported Safe Park Near Home %
0-24%	74	5	28
25-49%	70	8*	19*
50% and above	67*	10*	19*

*Significantly different from 0-24%, $p<0.05$

Note: Concentration of neighborhood poverty refers to the percent of households in the census tract with incomes below 200% of the Federal Poverty Level. In 2003, 200% of the Federal Poverty Level was $24,768 for a family of two and $37,620 for a family of four.

Source: Babey, S. H., Hastert, T. A., & Brown, R. E., (2007)

Figure 3

Physical Activity and Park Access by Neighborhood Unemployment Rate, Adolescents Ages 12-17, California, 2003

Neighborhood Unemployment Rate	Regular Physical Activity %	No Physical Activity %	Park within 400m of Home and Self-reported Safe Park Near Home %
Less than 3%	75	4	30
3-5%	69*	9*	22*
6-7%	69	9*	16*
8% and above	65*	9*	11*

*Significantly different from "less than 3%," $p<0.05$

Note: Neighborhood unemployment rate refers to the percent of unemployed persons age 16 and over in the census tract.

Source: Babey, S. H., Hastert, T. A., & Brown, R. E., (2007)

cities, a much more comprehensive analysis of the districts within LA can reveal the extent to which public parks are equitably distributed, and the effects this distribution of parks has on public health. Being able to compare LA to other cities in the U.S. is necessary to establish context that this issue exists. While this thesis' focus is to compare the neighborhoods and districts within Los Angeles, policy recommendations can be applied to all cities within which this problem exists. Therefore, understanding LA's unique version of a much larger problem will highlight past mistakes and conscious exclusions that must be recognized to solve this problem moving forward. Including demographic and socio-economic data allows for broader conclusions about contemporary discriminations of race and class to be made. These can be recognized and incorporated into policy recommendations for planners and designers.

Los Angeles has a population of roughly 3,966,366 as of 2019 and it's expected to grow by roughly 8.1% between the years of 2020 and 2030. This growth is expected to happen in the areas of the city that are already the most dense; Downtown LA, South LA, Echo Park and Silverlake. It's also expected to come primarily from migration rather than birth. For decades, LA has consistently seen large influxes of migrants from Latin America. The cultural influence this has had on the city has also helped create a strong sense of civic identity and pride among residents. (LACDPH, 2016). Younger people are also rapidly moving to urban areas in search of jobs, thus leading to increased housing prices from a higher demand. As of 2019, the largest demographic in the city is Hispanic, at 48.5%. These residents are not only the majority, but they are also growing at the fastest rate (LACDPH, 2016). The number of undocumented immigrants moving to the city is also growing. This number has been steadily increasing for decades and is predicted to continue. From a socioeconomic perspective, the average household income for the city of Los Angeles is $62,142 (LACDPH, 2016). While this seems to be close to the national average, exorbitantly high incomes for a small minority of LA residents tends to increase the average. Most residents live in dense areas that are overwhelmingly poorer than the few neighborhoods in LA that drive the average income higher. Similarly, the surrounding area of LA county has a higher average income at $68,044. Average household income is only one data point, it already hints to broader inequalities that are systemically built-in to the way that LA has developed throughout decades.

As for public parks, approximately 23,938 acres (8%) of total land in the city's borders are for parks or other land uses. When adjusted for the population size, that is 6.2 park acres per 1,000 residents. Broken down into simpler terms, that is roughly 1 park per 10,000 residents. (LACDRP, 2020). As mentioned above, this number includes private parkland as well. A considerable amount of park acres in Los Angeles are devoted to private clubs that exclude most of the city's population from their use.

When looking at the distribution of the parks in relation to household income and levels of poverty, the difference is staggering. Areas with a median household income of over $40,000 and less than 10% of residents below the poverty line can enjoy between 18-21 park acres per 1000 residents (LACDPH, 2016). Areas with a median household income between $20,000-$30,000 and between 20-40% below the poverty line have access to only 1 park acre per 1000 residents (Wolch, et. al., 2005). These numbers show that the vast majority of LA's green space and public parks fall in areas that have more money, while neglecting lower-income neighborhoods. These statistics are very similar when classifying park acres according to race instead of income. Areas where over 75% of residents identify as Caucasian can enjoy 31.8 park acres per resident. Looking exclusively at children, that increases to 192.9 park acres per 1,000 children (Wolch et. al., 2005). Areas that are predominantly Caucasian have an overwhelming majority of the green space in Los Angeles. A common sight to see are suburbs with vast tree coverage while urban areas have little in the way of greenery. In communities where over 75% of residents identify as Latino, African American, or Asian-Pacific Islander (API), those numbers reduce to anywhere between 0.3-1.7 park acres per 1000 residents and 1.6-6.3 acres

per 1000 children. Areas with the least number of parks are API and Latino communities, with African American communities only barely increasing their acreage by roughly 1. 9% (Wolch et. al. 2005). To simplify the data above, when looking at the city as a whole, most of the public parks are in the richer and whiter areas of the city. Previous research has shown that LA's parks have always been distributed this way, but the continuation of this injustice is something that can be avoided.

Urban density and suburban sprawl play a big role in defining where these parks are. As LA's population grows, there is an increase of people moving to already crowded neighborhoods in the inner-city areas. The less dense and more spacious suburbs are secluded by a wall of high property prices. Urban density highlights both class struggle through property values but also racial disparities. Communities of color are in the inner-city urban areas with less physical space but a much higher density, 2-5 times denser to be exact (Wolch et. al., 2005). White-dominated neighborhoods are in suburbs with more open space that can be developed into parks.

LA City Council District 4

District 4 (D4) covers some or all the following neighborhoods: Koreatown, Mid-Wilshire, Miracle Mile, Fairfax District, Hollywood Hills, Sherman Oaks, North Hollywood, Cahuenga Pass, Los Feliz, and Silverlake. It is also home to many of LA's most popular tourist destinations including Hollywood Boulevard, Griffith Park, the La Brea Tar Pits, The Los Angeles County Museum of Art, the Grove, and the Hollywood Bowl. The sheer number of tourist attractions is significant because this turns D4 into one of the highest earning economic zones in LA. The economic prosperity felt by the businesses and residents in this district will have significant impacts on the availability of public parks and green space as that is all funded by tax revenues. It's important to note the socioeconomic status and demographics of this district. Essentially, who is benefiting from tourism and how is that benefit affecting access to public parks? On the council, D4 is represented by Councilmember Nithya Raman, and has a total population of 260,788. This is notably lower than the other high park density area: District 11 (LACDPH, 2018). When compared with previous years, the population growth in these higher earning economic zones trends with previous research showing the highest levels of population growth in more dense areas of the city. Most of the population is white: 63.1%. Regarding the age of residents, most residents are between 18-64 years old (LACDPH, 2018). This category of people is extremely likely to take advantage of public spaces. Within this age range could be parents utilizing parks for their children, young adults seeking recreation, or recent retirees just trying to get out of the house. The fact that much of the population is within this category means that a lot of park space is going to be needed.

The median household income of D4 is $42,760, much lower than the city's average. In line with the lower average income, 12.9% of residents have had an income in the last 12-months that was below the poverty line (LACDP, 2018). Given that this district has very high tourist areas, the lower average income can seem like an anomaly, but it can be explained by the geographic location and the zoning of the district. This area is traditionally much more urban and has a lot fewer suburban areas. While most citizens still live in single housing units, that's because of the high rate of renter-ship in these urban spaces, rather than ownership of single-family homes. The zoning of the district matters here because less space is zoned for residential lots, leading to a higher density of housing units, and a much higher level of business and recreational space. However, this recreational space is not entirely public parks, but rather is taken up by the many high profile tourist attractions that were mentioned above. It may seem that D4 is more economically successful because of these high prosperity economic zones, but those revenues don't necessarily go to the residents, but the business' shareholders. One aspect of D4's economic prosperity that can be felt by the residents is the property tax revenues that come with these tourist attractions. Seeing as how property taxes directly fund public parks,

both in construction and maintenance, higher levels of park distribution in comparison to the other districts is expected.

Looking at its acreage of public parks, D4 has 16.8 park acres per 1,000 residents. This is four times larger than the next closest district, but still only half of the highest performing areas, District 11. This points to the exponential difference in available park space in D11 and D4. Given that the urban density of D4 is like districts closest to the urban center, it suffers from a lack of available space to build parks. This is counteracted by two combined forces: its location on the edge of the city, and the tourist/recreational destinations not accounted into traditional park acreage. Despite its density, most of the residential neighborhoods lie near the edge of the district where more space becomes available for parks to be constructed. The denser areas of D4 largely comprise the tourist destinations that can even be enjoyed by residents as recreational spaces. These two forces create a unique situation in D4 wherein it is just as dense as park poor neighborhoods, yet its residentially zoned areas are located to where they are spared the negative effects of this density while still enjoying the economic benefits that come with it.

Given its high level of park distribution, D4 is expected to see similar levels of compliance with CDC health recommendations, premature deaths to cardiovascular disease, premature deaths to diabetes, and rates of childhood obesity that were seen in D11. This is consistently seen in D4's public health outcomes. D4 has the exact same percentage of residents who meet CDC recommendations for physical activity, 42% (Kakietek, et. al., 2009). This low percentage relative to the high level of access to public parks can be attributed to broader social and cultural trends in the United States regarding physical activity (Kakietek, et. al., 2009). Residents also have significantly lower levels of premature death and rates of obesity when compared to other districts. Per 100,000 residents, there are 473 years lost to premature death caused by cardiovascular disease, and 66.7 years lost to premature death caused by diabetes. Rates of childhood obesity are also far less prevalent than in more park-poor areas (LACDPH, 2018). At only 22.2% it is not the lowest of the districts studied in this thesis, or of all districts, though it is far less than areas with a much lower level of public park access.

LA City Council District 8

The second most park poor district within Los Angeles is LACD 8. This area encompasses most of the South LA neighborhood and is currently represented by Councilmember Marqueece Harris-Dawson. D8 has a population of 252,296, with most of its residents identifying as Hispanic: 56.66% (LACDPH, 2018). There is also a much higher percentage of black residents in this neighborhood in comparison to the other cases for this study, and for other districts in the city: 39.96%. When comparing that to the most park rich districts of 11 and 4, the percentage of the population that identifies as black is very close to the population of D8 that identifies as white: 1.77%. These racial differences across neighborhoods do have historical roots in redlining and housing discrimination, and the systemic discrimination that has created this lack of diversity among neighborhoods and the intentional creation of racial enclaves to protect white residents. The age of the residents in D8 are also closer to other park poor districts analyzed in this study, with most of the population, 63%, staying between 18-64 years (LACDPH, 2018). The age of residents is particularly significant in park poor districts because of the reasons mentioned above.

District 8 also has a considerably lower average household income in comparison to the citywide average. At $31,539, this is only slightly higher than half the average. Combined with the increased household size, urban density from compact housing, and rate of poverty, D8 has poorer socio-economic conditions in the specific areas that will impact the funding for new or updated park spaces (LACDPH, 2018). As such, it is expected that there will be lower park acres available to the residents in comparison to the citywide average and the best performing districts. D8 has a drastic drop in available park acreage per 1,000 residents at 0.53 (LACDPH, 2016). Compared to D4, the difference is

staggering. Urban density in this area is like that of D4, yet the access to public parks is massively reduced. Density is not the only predictor though. While it is certainly an influence, there are other consistent trends that are much better predictors of park availability.

Regarding public health, only 42% of LACD 48's residents meet the recommended guidelines for physical activity as laid out by the CDC (Kakietek, et. al., 2009). Per 1,000 residents, LACD 8 experienced 1199.1 years of potential life lost due to cardiovascular disease, 318.1 years of potential life lost to diabetes, and had a childhood obesity rating of 35.5% (LACDPH, 2018). This trends accordingly with the other districts analyzed in this thesis. And it goes along with the expected trend of higher rates of potential life lost and other public health outcomes when controlling for the acres of park access. Overall, there are massive disparities in the availability of public parks and recreational spaces when, and these differences can be best seen when comparing the most park-rich city council districts: 11 and 4, to the most park-poor: 9 and 8.

LA City Council District 9

District 9 encompasses the majority of South LA and the western portion of Downtown LA. It is also home to attractive tourist destinations, similarly to District 4. Within its boundaries lies LA Live, the Staples Center, and the Los Angeles Convention Center. It is represented on the city council by Councilmember Curren Price and is home to 285,373 residents. The overwhelming majority of the population is Hispanic at 79.18% (LACDPH, 2018). Before analyzing the other aspects of this study, the difference in population demographics shows a very different neighborhood than in the districts that are park rich. In contrast to these park-rich areas, the white population is only 3.19%. The age of D9 residents is also slightly different than the previous districts. The most important change in the age of these residents is the proportion of those 0-17 years old, which increases to 30% (LACDPH, 2018). This makes D9 unique in that it has a very high population of younger people, who traditionally rely heavily on public space. While of course the other age groups take advantage of public space, there is a special importance for younger groups when looking at public health. This carries with it heavy implications given that this is also the most park-poor of all LA City Council Districts.

D9's population is also affected by broader trends in migration that are felt by the city. Migration patterns show large influxes of Hispanic families, predominantly in areas that already suffer from urban density. Most likely this is because of the prevalence different Latin American cultures have in these areas, with deep roots and strong connections that incentivize new residents to move where they feel most welcomed. This creates a feedback look of new residents moving to already dense areas while pseudo-ethnic enclaves are formed in richer suburban areas that exclude inner-city residents from utilizing the park space afforded to them through higher property values and increase socio-economic power. The average household income in this district is $26,300, which is far below the city's average. There is also a much higher rate of poverty with 34.6% of residents earning an income in the last 12-months that was below the poverty line (LACDPH, 2018). There are many factors that lead to lower-income communities sprouting in cities, though, the major historical trends discussed in the literature review establish the foundation for lower economic standing. Modern problems such as no policy change for housing, a lack of social safety nets, and little municipal investment lead to lower quality homes that are far denser. All these issues leave the community with a smaller property tax base to fund much-needed parks. Denser areas like D9 have extremely limited space and with less economic incentives that are seen in places that have better accessibility to parks. These areas are also unlike D9 in that they have more single-family homes and fewer multi-family homes that do not have as high of a property tax base. Such areas are left with little to no funding for park space.

In terms of park distribution, Council District 9 is the most park-poor, performing far worse than the most park-rich and even the average

for the city. Per 1,000 residents, D9 has 0.33 park acres (LACDPH, 2016). The availability of park space for residents in this district is astronomically reduced compared to other areas. This disparity has a multitude of implications for those living there. Given the demographic make-up of the area, this continues historical and contemporary injustices through planning and design of urban spaces. Through this, the areas with the lowest amount of park space have the highest ratio of people of color living there. The higher rates of poverty and poorer socio-economic conditions of these areas also differ significantly to what was seen in D11 and D4. The continuous discussion around urban density plays a significant role when analyzing the level of park poverty, however it is also relevant to address the different policy decisions that have contributed to this. As mentioned in the literature review, the Quimby Act, Prop 13, and other acts limit the availability of parks in lower-income areas through restrictive policy (Robbins, 2020). The most significant hurdle to constructing new parks in these neighborhoods is tying park funding to property tax, inherently limiting the available funds. Whether it is through in-lieu fees or capped property tax, there is a structural hurdle imposed onto lower-income neighborhoods that does not exist for higher-income areas.

District 9 also performs considerably worse across all public health measures. Only 32% of residents meet the CDC's recommended guidelines for physical activity (Kakietek, et. al., 2009). There are still national trends and social norms that affect this measure, however, the difference between districts is still significant. The lower levels of adherence to CDC's recommendations can be attributed, to some degree, to the lack of public parks available to these residents. On other public health measures, D9 performs in a similar capacity. Per 100,000 residents, there are 1027.3 years of life that are potentially lost due to premature death due to cardiovascular disease, and 235.7 lost to premature death caused by diabetes. There is a higher rate of childhood obesity in this area as well, 33.3% (LACDPH, 2018). The difference between park rich districts and park poor districts in these categories is exponential. There are far higher rates of premature death and negative outcomes in park poor districts.

LA City Council District 11

Out of the fifteen city council districts that comprise the city, one stands above the rest with a significantly higher results on all measures. District 11 covers some or all the following neighborhoods: Brentwood, Del Rey, Mar Vista, Marina del Rey, Pacific Palisades, Palms, Playa del Rey, Playa Vista, Sawtelle, Venice, West Los Angeles, Westchester, and LA International Airport. It is represented on the city council by Councilmember Mike Bonin and has a total population of 266,594. Most of the population is white: 62.2%, this is far higher than the average proportion of white residents for the city (LACDPH, 2018). This dichotomy in racial identity between District 11 and LA is relevant to the distribution of public parks when recognizing the role that historic discrimination in housing development plays in determining where public funds are spent. Demographic differences between districts are an important determinant when looking at park distribution to recognize larger social issues. When compared to the city's data, District 11 is home to a slightly older population with 15% of residents being 65 and older (LACDPH, 2018). D11 also has a significantly higher population of white residents in comparison to other districts and nearby areas outside the city such as in LA County. The significance of this racial difference shows that racial enclaves within the city exist and have outcomes that vary significantly from neighborhoods and districts who are more diverse in all demographic categories.

The median household income of D11 is $71,420. Contrasted to the city's data, D11 has significantly higher percentages of residents that make above the total average income, as well as very few residents that qualify as lower income. Only 8.8% of D11 residents had income in the past 12 months that was below the poverty level (LACDPH, 2018). When combined with the information that roughly 70% of residents have household sizes of one or two persons, the data

clearly shows that D11 is more economically successful and less dense than the city or other districts. The household size is indicative of single-family homes and suburban zoning, both of which are conducive to higher levels of park acreage as opposed to areas with higher household size, leading to higher zoning density.

Public Park access in D11 is overwhelmingly higher than any other district in LA. D11 leads all 15 districts with 35.10 park acres per 1,000 residents (LACDPH, 2018). When looking only at LA's city average, this is a staggering number. When compared to the cases for this study, D11 has almost double the park acres of the next closest area whose residents enjoy 16.8 acres (LACDPH, 2018). These numbers trend even higher than Wolch's findings in a study showing that neighborhoods with lower socio-economic performance have between 18-21 park acres per 1000 residents (Wolch et. al., 2005). D11's performance was far higher than in the estimates by Wolch's study. With the average income of D11 being relatively high, the park acreage trended upward with it. (Wolch et. al., 2005). Historically, the neighborhoods comprising D11 have been majority white, upper-middle class, and single-family zoned. The collected data tracks well with historical trends and shows the link between these demographic and socio-economic facts, and park acreage.

When looking at D11's performance regarding public health measures, its much higher than other districts. Per 100,000 residents, D11 has 379.5 years lost to premature death caused by cardiovascular disease, as well as 54.3 years lost to premature death caused by diabetes (LACDPH, 2016). For the prevalence of childhood obesity, D11 had a percentage of 19.9%. These numbers are considerably lower than most of the districts in Los Angeles. When coupled with the high volume of park acres available to each resident, the link between these becomes clear. However, only 42% of residents meet the CDC's recommendations for recreational activity (Kakietek, et. al., 2009) Relative to the easily available public parks, this number seems low on the surface. Other factors may be contributing to this, such as higher average age, the emphasis on car-based cities opposed to walkable cities, and average levels of recreation at the state and national level may all be contributing to lower rates of recreational activity. While it is outside the scope of this study, these factors should be touched upon. Despite that low percentage point, it is still contrasted by more positive performance data in the other two public health measures.

INEQUITY IN LA - CONCLUSIONS

It can be concluded that there is a relationship between the demographics and socio-economic conditions of city council districts and the equitable distribution of public parks and recreational spaces. As such, this causes a significant difference in the reported outcomes for these neighborhoods' public health. This inequitable access to public spaces only continues the discrimination and systemic racism that has historically affected LA's neighborhoods.

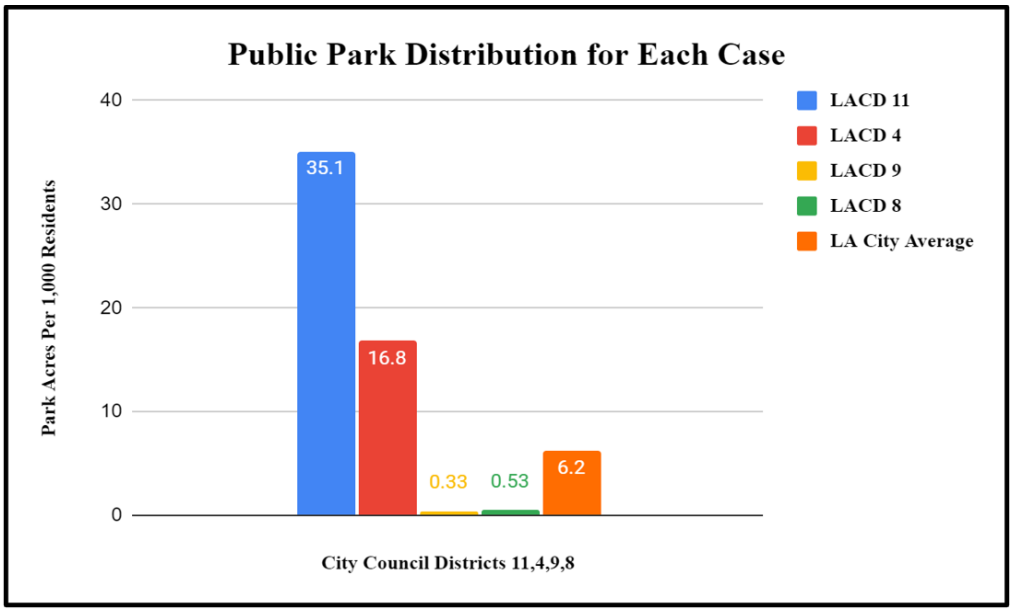
Comparing the four cases chosen for this study, the most amount of public park and recreational space per district is in District 11 (Figure 4). Looking individually at these measures of predicted park access, racial make-up of city council districts is quite a strong predictor. Between the two most park-rich districts, there is not only an increased population of white residents, but specifically the ratio of Hispanic residents decreases. Going from 19.1% in District 11 and increasing to 79.18% in District 9 shows a clear racial disparity between areas with high access and low access to public spaces (Appendix 2). There is a strong link between the racial make-up of these districts and the predicted availability of parks. There is also a negative relationship between the average household income within each district and the availability of public parks. As the average household income increases, so does the amount of park acres per 1,000 residents. The inverse is true as average income decreases. Coupled with the varying demographics between cases, it becomes clear that most public parks in Los Angeles are concentrated in the whiter, wealthier neighborhoods, while the poorer communities of color lack the same access to green spaces.

The relationship between race, wealth, and

parks has drastic effects on public health as well. In the areas where there are less park acres, the number of years lost to premature death in every analyzed category increases. The inverse remains true for areas with a higher acreage of parks. There is also less adherence to CDC recommended guidelines for recreational activity in the spaces with less parks. The reasoning behind this does not reflect attitudes or cultural differences within the communities, but a lack of access because of municipal failure. The disparity in health is clearly linked to a lack of recreational facilities, which is compounded by poorer economic conditions for said residents. The design of parks in areas like D4 and D11 also differ dramatically. Park-rich districts with more funds to construct and maintain parks have access to trails, exercise equipment, and sports facilities. This is not always true for the park-poor districts. It is more common to see smaller parks with less capacity to provide recreational equipment and exercise space. By not providing the necessary space, equipment, and park quality, designers and planners are exacerbating these public health disparities. This connection is not a recent phenomenon, but a continued cycle of systemic discrimination that has its roots in red-lining and racially motivated housing policy of the late 20th century. Policy decisions that limited the economic opportunities for communities of color restricted the supply of funding for public parks and de-incentivized local officials from investing there. While rooted in past injustices, the continuation of such inequity is a problem that can be solved today.

Policy recommendations to begin remedying this problem are simple: the correction of past mistakes that continue the discriminatory practices of the past century. Policy approaches to solving park equity have been discussed for many years in California. Recently, the 2020 election in California included one proposed measure to repeal Proposition 13, but this initiative failed. Passing such a measure down the road could reinvigorate Los Angeles' tax base by requiring higher income neighborhoods with higher property values to pay a fairer share of taxes. More property tax income for the city would allow for higher investment into lower-income communities that are desperate for park development. The Quimby Act and Proposition K have also received heightened public attention

Figure 4



regarding their effect on park inequity. For Proposition K, the prospect of repealing the measure seems unlikely. A more plausible solution is to establish more robust and politically powerful community-based organizations in poorer neighborhoods. Doing so would allow them to better apply for park project grants under Proposition K. The Quimby Act could be easily amended to close the "in lieu" fees loophole. Requiring new housing developments to include recreational space, instead of giving them an option to opt-out for a fee, would essentially force development companies to address park inequity. On a much broader scale, decoupling park funding from property tax would go a long way towards reducing the prevalence of park-poor neighborhoods in Los Angeles. Allocating funds on a need-based system rather than property values ensures that parks are built where they should be.

Aside from policy approaches, one of the most common solutions to park inequity is to simply build more parks. Perhaps the most important impediment to remedying inequity is the lack of space for potential parks. Especially in Los Angeles, the neighborhoods that are most affected by park access are denser than others. As previously stated, inner-city neighborhoods are 2-5 times more densely populated than suburban neighborhoods (Wolch et. al., 2005). Since these neighborhoods desperately need more public parks, new solutions to the land issue need to be created. According to Alessandro Rigolon, the three most important issues when trying to decide where to build new parks are proximity, acreage, and quality (Rigolon, 2016). The easiest to combat is proximity. If the goal is to provide green space close to underdeveloped areas, then smaller parks with less amenities can be built into housing developments, or in small residential lots that have been abandoned (Rigolon, 2016). While this leaves much to be desired in terms of quality, it nicely solves the issue of proximity. Acreage and quality go hand in hand as the harder of these three issues to solve. In dense urban areas, residential lots are not large enough to accommodate sports fields or large recreational areas. One solution proposed it to build near transportation hubs such as bus stops or metro lines, or near stormwater infrastructure (Rigolon, 2016). These commonly have open space to accommodate parking and other municipal functions. However, this solution is double ended as it solves the problem of park equity but exposes residents to potentially hazardous emissions from stormwater and heavy traffic from public transportation.

This problem will never be completely solved, the allocation of public space is ever-changing and always necessary. Further research for this issue is needed to design specific parks for neighborhoods in need, both within Los Angeles and all urban spaces. This thesis has served as a foundation of research analysis into four city council districts of Los Angeles to analyze how well these areas perform in providing public parks and promoting public health. As such, the full extent of this issue in LA has not been reached. To that end, planners and legislators should correct ineffective policy and failed design that have perpetuated past injustices and should work to create an equitable future for all residents of Los Angeles.

APPENDIX

1) Does Design Matter?

Discussing solutions to park inequity will inevitably lead the conversation to the topic of design. There are many designers who have been inspired to end park inequity and have created designs for new parks unique to Los Angeles. Three such designs that seek to reimagine the city's current infrastructure and make it more accessible and park friendly. The first proposed plan is the Los Angeles River Revitalization Master Plan (LARRMP), seeking to utilize the waterway as a public good through multiple different projects. One is The Albion Riverside Park (Figure 5) would provide open green space and multiple sports fields to the communities near Dodger Stadium and Lincoln Heights (Reyes et. al., 2007).

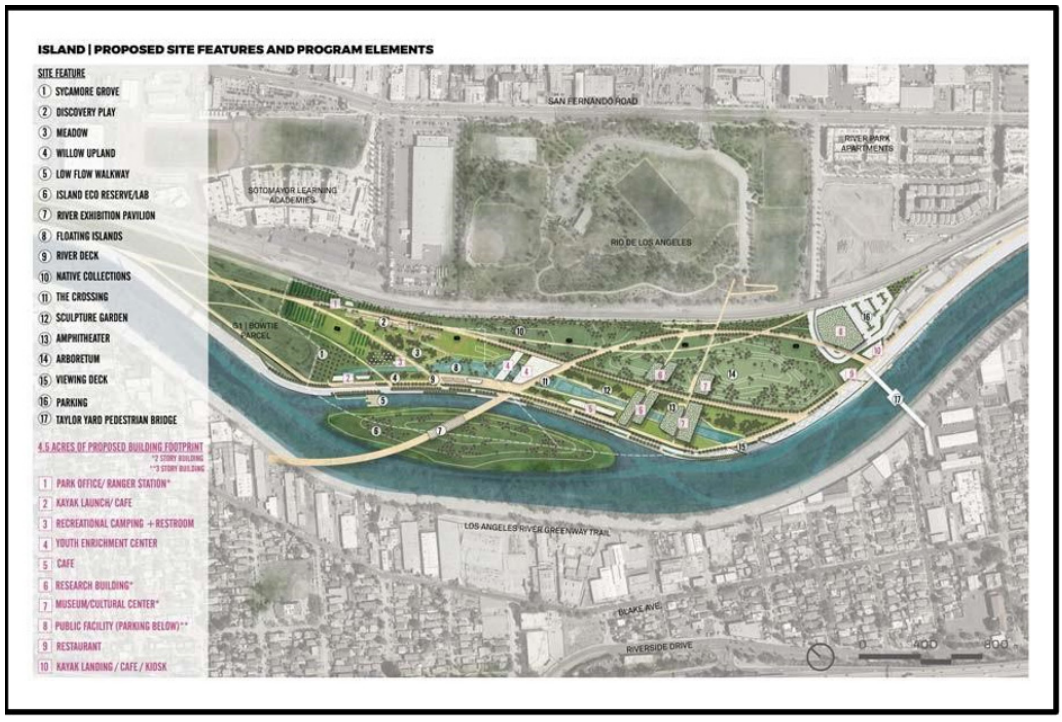
Another project is the Taylor Yard G2 River

Park Project (Figure 6). While the Bureau of Engineering has three proposals under this project, the most promising one is an island project. It seeks to completely overhaul how the Los Angeles River is used in the Cypress Park neighborhood, an area that is relatively park-poor. It would establish a pseudo-island in the river that would be connected on either side by

Figure 5

Source: Reyes, E. P., Garcetti, E., Huizar, J., et. al., (2007)

Figure 6



Source: Reyes, E. P., Garcetti, E., Huizar, J., et. al., (2007)

tree-filled parks with bike paths for recreation.

The third prominent solution to park inequity in Los Angeles has to do with the heavily trafficked 101 Freeway. The group named "Friends of Hollywood Central Park" has developed a plan to construct a 38-acre park on top of roughly 1 mile of freeway, named Park 101 (Figure 7) (Barragan, 2014). As of 2020, the plan has gone silent and seems to be no longer in progress (Sharp, 2017). The details of the dead proposal still give powerful insight to what can become of Los Angeles if given the proper attention. Running from Santa Monica Boulevard to Bronson Avenue, the park would bridge the division that runs through Downtown Los Angeles, arguably the area that experiences the most amount of park inequity (Barragan, 2014). This plan would provide much needed green space to the residents of DTLA.

Figure 7

Source: Sharp, S., (2017)

2) Demographics: Los Angeles City Council Districts

This data was collected from the 2020 Los Angeles Citywide Census and is supplemental. Its purpose is to provide a broader context for the inequities discussed in this thesis, and to show the disparities that occur relative to the racial make-up of each neighborhood.

Racial Make-up: Los Angeles City Council Districts

Racial Make-up: Los Angeles City Council Districts

LA City Council Districts	% White	% Hispanic	% Black	% Asian	% Pacific Islander	% Native American
1	9.20%	69.5	2.5	17.6	0.2	0.2
2	42.9	43	4.6	6.7	0.1	0.2
3	44.8	36.4	3.9	11.7	0.01	0.3
4	60.9	14.5	4.4	16	0.1	0.1
5	68.1	11.2	3.1	13.3	0.2	0.1
6	18.4	66.7	3.2	10	0.1	0.2
7	22.3	66.8	3.1	6.3	0.1	0.2
8	2	52.2	41.7	2.1	0.1	0.1
9	2.1	79.9	15.7	1.5	0.1	0.1
10	10.2	44.1	28	14.7	0.2	0.1
11	60.1	18.7	5.2	11.6	0.2	0.2
12	47.7	28.1	4.3	16.4	0.3	0.2
13	25.6	51.1	3.6	17	0.2	0.2
14	13.6	68.1	4.2	12.4	0.1	0.1
15	18.5	60.7	11.9	5.9	0.4	0.2

Source: Los Angeles 2020 Citywide Census. (2020).

Residents' Age: Los Angeles and Selected LACDs

Residents' Age: Los Angeles and Selected LACDs

	% Aged 0-17	% Aged 18-64	% Aged 65 and Older
LACD 4	16	70	14
LACD 8	26	63	10
LACD 9	30	64	6
LACD 11	17	68	15

Source: Los Angeles 2020 Citywide Census. (2020).

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