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Spatial Disparities Analysis of the City of Richmond, Virginia's Neighborhood Park Amenities

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Libby Hill Park, 2021
Photo Credit: Molly Mallow

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Monroe Park, 2021
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Acknowledgments

This, by far, has been the most difficult section that I have written for this plan. I would like to thank my panel for working with me throughout this entire process and guiding me throughout this entire year.

I would also like to thank my friends and family for being there for me at every point of the writing process for this plan. I cannot thank you enough for your support throughout these past two years and for sticking with me through thick and thin. Your support, kindness, and endless jokes helped carry me through all of this.

Most importantly, I would like to dedicate this plan in memory of my mother who was the first person I thought of every time I sat down to write this section. Words cannot begin to express how much I wish you could be here to finally see me graduate.

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Photo Credit: Molly Mallow

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Executive Summary

Neighborhood parks play an integral role in uniting their individual neighborhoods as well as creating flagship locations throughout the City of Richmond for a variety of purposes. These parks not only provide a more intimate setting for activities but also highlight the natural landscape of the City of Richmond, attracting residents and visitors alike, in order to provide safe and reliable opportunities for recreation and ample green spaces. However, the quality, quantity, and type of amenities can vary by park, resulting in disparities and inequitable access to amenities. This plan, in collaboration with the City of Richmond Department of Parks and Recreation, focuses on 11 neighborhood parks throughout the City of Richmond and identify existing spatial disparities of neighborhood park amenities.

This plan provides demographic data based on total population, median household income, median age, and race for all block groups surrounding the 11 neighborhood parks studied. In addition to this plan also includes a park amenity assessment that was used to assess the quality of over 350 neighborhood parks amenities across the 11 neighborhood parks. Together, both the demographic and amenity quality data were assessed to identify which residents had adequate access to neighborhood park amenities within 1/2 mile of their residence and is represented in both tables and ArcGIS maps.

Finally, this analysis influenced the final recommendations provided to the Department of Parks and Recreation that includes three goals focusing on high-quality neighborhood park amenities (Goal 1), diverse types of park amenities (Goal 2), and equitable access to neighborhood park amenities (Goal 3). These goals, along with their accompanying objectives and actions, aim to provide the Department of Parks and Recreation with a prioritization of future park improvements and projects in order to better serve all residents throughout the City of Richmond, Virginia. Together, this plan aims to focus on ensuring that all residents throughout the City of Richmond, Virginia have access to high-quality park amenities that meet the needs of their community within 1/2 mile of their of their residence.

Abner Clay Park, 2021
Photo Credit: Molly Mallow

Purpose

Parks are essential in ensuring the health, happiness, and longevity of local communities. Studies have found that parks help improve the mental and physical health of users as well as improving their quality of life (Chen et al, 2020). In addition to the health benefits of parks, they also serve as open spaces that are essential in building strong communities. As the City of Richmond continues to evolve, it is important to understand the quality and quantity of existing park spaces and their accompanying amenities.

This professional plan serves to provide the City of Richmond with an assessment of the existing conditions of the 11 neighborhood park's amenities as they have not been assessed since the approval of the last Parks Master Plan in 1970. This project identifies the spatial disparities based on race, median household income, and median age per ACS 2019 (5-year estimates) of neighborhood park amenities by analyzing the location of existing amenities and identifying concentrations of deficits in the quality and quantity of these amenities. This analysis aims to provide the Department of Parks and Recreation with recommendations that focus on increasing the quality, quantity, and types of amenities avaiable across the 11 neighborhood parks in order to better serve the residents of the City of Richmond, Virginia.

This plan aims to identify concentrations of low quality and quantities of amenities to determine which residents are currently lacking access to these resources. Through a focus on equity, this project aims to provide the Department of Parks and Recreation with targeted improvements in order to increase residents' accessibility to high quality and quantities of park amenities.

Client Description

The client of this project is the City of Richmond, Virginia Department of Parks and Recreation (DPR). The City of Richmond Department of Parks and Recreation is responsible for the parks, monuments, open spaces, athletic fields, trails, cemeteries, event venues, dog parks, playgrounds, community centers, and recreational and educational activities.

The City of Richmond Department of Parks and Recreations provides recreation and leisure programs aimed to improve the quality of life of residents and visitors of Richmond, Virginia. Representing the City of Richmond is Ryan Rinn, the Economic Development Business Services Manager for the City of Richmond Department of Parks and Recreation.

Outline

This project contains maps, tables, and outlines the analysis tools that will be used in the assessment of the spatial disparities of the City of Richmond's park amenities. This proposal contains a classification system to provide an in-depth analysis of each park's facilities, acreage, and recreation type. Additionally, this plan outlines the metrics that will be used in the assessment of the existing amenities in the City of Richmond's neighborhood parks and uses this information to provide the Department of Parks and Recreation with final recommendations for the improvement of park amenities throughout the city.

Overview

Parks and green spaces play an integral role in their designated communities through providing residents with open and safe spaces that can be used for a variety of recreational purposes. Comprehensive Planning documents, like a Park Master Plan, are essential in not only understanding the existing conditions of spaces but also in gaining valuable community input regarding the future of developments in the community. Additionally, the National Recreation and Parks Association (2021) states that Master Plans are also essential in ensuring that parks are equitable and inclusive spaces through understanding the quality, quantity, and access of these spaces to their communities. This literature review aims to understand the role that the physical conditions of parks play in the community and how to analyze existing disparities in these spaces through analysis tools, like ArcGIS, in order to provide recommendations regarding future park amenity improvement projects.

Park Amenities and Usage

Amenities are important in attracting residents and visitors to parks and green spaces and foster safe recreational activities. Baran et al (2013) found that certain amenities are utilized by different demographic groups more commonly than others noting that adults and adolescents were more likely to utilize sedentary activities (benches, picnic tables, shelters, etc.) whereas more physical demanding activities (playgrounds and sports fields/courts) were used more by children (Baran et al, 2013). Additionally, Kaczynski et al (2014) found that certain amenities are used more frequently depending on the median household income of a neighborhood or surrounding area with playgrounds and baseball fields being used more frequently in low-income areas, fitness stations and dog parks in middle-income neighborhoods, and playgrounds, baseball fields, splash pads, tennis courts, trails, fitness stations, and skate parks in high income neighborhoods (Kaczynski et al, 2014).

The types of available park amenities aim to not only provide residents with essential services but encourages a wide range of recreational and social activities. however, the quality and quantity of these amenities can impact the overall perspective that residents have of these spaces. The types of amenities present in park can increase its attractiveness and the amount that the park is used. Increasing the number of trees, picnic tables, and other features has shown to increase overall park usage (Edwards et al, 2015).

Park Classification & Assessment Tools

Park Classification Systems

A park classification system is helpful in demonstrating the different characteristics of parks and green spaces and also represents the types of amenities of each space. Many professional reports, such as other jurisdictions' Park Master Plans, represent examples of these classification systems and their effectiveness in evaluating each park individually as well as in relation to one another. One example of this is the Morgan Hill, CA 'Bikeways, Trails, and Parks and Recreation Master Plan' (2017) that uses a simple classification system that differentiates parks by their total acreage. This comparison allows for parks of a similar size to be compared to one another without comparing any other physical features or characteristics. Another example of a classification is the more complex one featured in the Big Lake, Minnesota Park and Trails Assessment (2018) which breaks down parks by acreage, class (type of park), and amenities. This more detailed classification allows for parks to be compared against one another in their entirety and also provide more cross tabs to be analyzed to understand physical disparities among different park types.

Similarly, the different amenities that exist at each park impact the overall usage of the space. Another method of classifying parks is to differentiate by usage and whether the amenities foster active or passive recreation. One example of this is in the Oklahoma City Parks Master Plan which further disseminated park use by the types of recreational activities available within neighborhood parks. This plan outlines amenities such as "internal walking trails, open space, gardens, and people watching areas" as passive recreation and "play structures, court games, tennis and volleyball courts, and outdoor exercise structures" as active recreation (Oklahoma City, 2013). This classification allows for parks of similar experience types to be compared to one another and reflects a more in-depth classification of neighborhood parks.

Park Assessment Tools & Spatial Disparities

Park assessment tools differ from park classification tools as they analyze the conditions of a space whereas the classification system focuses on the categorical differences of parks. Park assessment tools are beneficial in the quality assessment of park amenities. Different jurisdictions provide scoring metrics on a numeral scale that focuses on focuses on measures of the physical condition of the amenities such as erosion control, damage to walkways, lack of benches, and damaged or missing trash receptacles (City of Culpeper, 2016);(City of Roseville, 2017). Additionally, a scaling method like the one from Lakewood, Colorado's 2020 'Legacy Plan' which utilizes a 1-3 scale to measure disparities in the physical conditions of park amenities. Amenities can be assessed across different parks of similar sizes to understand how conditions vary throughout the jurisdiction (City of Lakewood, CO, 2020). Additionally, these methods of amenity assessment allow for there to be an average picture of the quality and quantity of park amenities which can be displayed in mapping software, like ArcGIS. Using ArcGIS, this metric aims to assess access to parks by nearby residents. These tools, in conjunction with the park's classification tool, can be used to identify the different characteristics of parks maintained by the City of Richmond and provide an analysis of the parks physical conditions and existing disparities.

Similarly, quality assessment tools are helpful in conjunction with demographic data to identify possible disparities in access for different types of park amenities. Studies have found linkages between race and socioeconomic status and the quality and quantity of park amenities as well as less diversity in the type of park amenities in these parks (Rigolon, 2016). This not only has an impact on the activities that are available for different demographic groups but also who has access to diverse park amenities. Additionally, exceptional examples of parks that lack the issues of disparity include parks that are accessible and are in reach of alternative transportation types, diverse amenity types that appeal to different demographic groups and seasons, and are inclusive and accessible to all people (Project for Public Spaces, 2009).

The interconnectivity between the creation of inclusive parks begins with ensuring that all populations have access to diverse park amenities in a well-managed and kept space. As defined by the City of Munster, Indiana, the service area of a neighborhood park is between ¼-½ of a mile (City of Munster, 2017). This service area boundary in conjunction with demographic data and the quality and quantity of existing park amenities will be used to identify which demographic groups have access to high-quality and high-quantity park amenities throughout the City of Richmond.

Identifying concentrations of low quality and quantities of amenities is imperative in understanding accessibility of residents to these resources. Additionally, identifying these concentrations is crucial in acknowledging the historic inequities that exist in park systems. Similarly, studies have found that areas with more residents that have lower income, educational attainment, or identify as non-White living in areas with fewer park acres per person (Moore, 2019). Acknowledging and working to remedy the inequities that have barred many residents from having access to high quality parks, green spaces, and amenities is imperative in rebuilding the community's trust in the city.

Theoretical Framework

The focus of this project is the creation of equitable community space and recreational opportunities for all residents of the City of Richmond. This project's final outcome will provide the City of Richmond with detailed recommendations regarding the prioritization of future park amenity projects. Through this, a Just City and incremental frameworks will be applied throughout this professional plan. These frameworks will work to shape the final recommendations as this project focuses on the creation of sustainable and equitable community spaces throughout the City of Richmond, Virginia as well as provide manageable steps to completing these goals.

According to Fainstein, the Just City is, "a city in which public investment and regulation would produce equitable outcomes rather than support those already well off" (Fainstein, 2011). This approach represents the core mission driving this project which is to foster equitable communities and park access for the residents and visitors of the City of Richmond, Virginia. Additionally, this theoretical framework is represented in the focus on the spatial disparities in the quality and quantity of existing park amenities throughout the City of Richmond. Another aspect of the 'Just City' framework is the focus on inclusive and equitable engagement and decision-making. According to Reece, "the Just City theory is grounded in addressing social and geographic inequities through processes that foster participation, empowerment, and decision-making by marginalized groups, leading to more equitable outcomes" (Reece, 2018). This focus on diversity and democracy are crucial throughout a planning process focused on recognizing and improving existing disparities present throughout the 11 neighborhood parks. Additionally, the second approach is an incremental planning framework. According to Tillner et al, an incremental approach is described as a "means to break down the long-term planning horizon into smaller entities, i.e. to develop an overall plan with intermediate stages which are complete projects by themselves" (Tillner et al, 2013). This approach allows for larger recommendations to be broken down into smaller, more manageable actions for completion by the City of Richmond. Similarly, this approach would also be used as a 'smaller step' in the overall development of an updated Parks and Recreation Master Plan. This framework represents the smaller goals and objectives that will be influenced throughout the research process for the City of Richmond and be used in the prioritization of future projects of the final recommendations.

These frameworks work to influence not only the overall mission of this project but also influence the method in which the final recommendations are presented to the City of Richmond. Through focusing on smaller, incremental steps to improving the existing disparities in the park system, the City of Richmond can also, simultaneously, focus on maintaining existing park structures and make improvements at a sustainable pace. Additionally, through focusing on equity throughout this plan, historically vulnerable populations are put at the forefront of this project's final recommendations to the City of Richmond.

Overview

This analysis of the City of Richmond, Virginia's parks and green spaces aims to identify existing disparities in the physical conditions of the parks and provide the Department of Parks and Recreation with educated recommendations focusing on future parks projects and improvements. Through the development of a parks classification system the different characteristics of the parks are identified and put into a uniform matrix. This project aligns with the City of Richmond's goal of ensuring that the parks and green spaces throughout the city are safe and improve the lives of all residents and visitors.

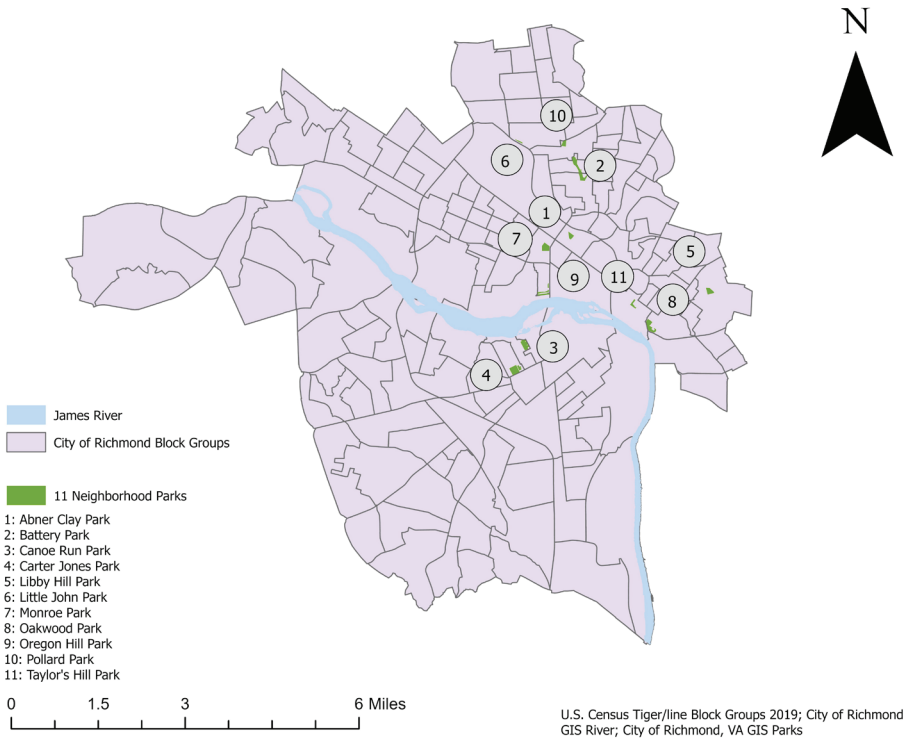
Existing Plans & Actions

The last time that the City of Richmond approved and adopted a Parks and Recreation Master Plan was in the 1970s. However, in 2020, the city adopted a new Comprehensive Plan named Richmond 300: A Guide for Growth. In this plan the City of Richmond stated in objective 2.1 that one of their strategies to improve existing and future facilities to align with the future land use plan was to develop a Parks and Recreation Master Plan (City of Richmond, 2020). This movement towards an updated and upgraded Parks Master Plan would address existing disparities and conditions as well as outline a timeline for completion for these projects. Similarly, in 2020, the City of Richmond's Mayor Levar Stoney's administration established a 'Healthy Neighborhoods' initiative that aims to increase park access and coverage throughout the City of Richmond (Stoney, 2020).

Additionally, in recent years, the Department of Parks and Recreation has worked on two major park renovation projects of its neighborhood parks with the completion of the Monroe Park project in 2018 and the continued work on Abner Clay Park. These projects lay precedent to the mission of this project which aims to provide the City of Richmond with a benchmark of the existing conditions and possible disparities of its park amenities in order to provide the Department of Parks and Recreation with a prioritization plan to aid them in the process of their future Parks Master Plan.

Study Areas

Eleven neighborhood parks were chosen for this project's sites as these parks vary in acreage, amenities, and location throughout the City of Richmond. These 11 parks are dispersed throughout the City of Richmond; however, there is a concentration of parks throughout the North and Central areas of the city. Map 1 shows the neighborhood parks throughout the City of Richmond, Virginia. A map in Appendix A shows the locations of the 11 neighborhood parks in relation to all other parks throughout the City of Richmond, Virginia.



Map 1: City of Richmond, Virginia Neighborhood Parks

Classification Matrix

Additionally, a parks classification matrix was used to further understand the existing conditions of the 11 neighborhood parks. This matrix provides information about each park's total acreage, recreation type, location, and viewshed. This information is crucial in understanding where amenities are located and who has access to them throughout the City of Richmond. Amenities were chosen if at least one of the study areas already had one in their inventory. Appendix B includes a more detailed index showing recreation type, amenities, and acreage. Table 1 shows the Park Classification for the 11 selected neighborhood parks.

Table 1: Neighborhood Park Classification

Map Number	Park Name	Recreation Type	Address	Acreage	Viewshed
1	Abner Clay Park	Active	200 West Clay Street	4.6	No
2	Battery Park	Active	2803 Dupont Circle	11.8	No
3	Canoe Run Park	Active	600 W 22nd St	4.5	No
4	Carter Jones Park	Active	2813 Bainbridge Street	11.3	No
5	Libby Hill Park	Passive	2801 East Franklin Street	7.0	Yes
6	Little John Park	Passive	1401 Little John Road	1.3	No
7	Monroe Park	Passive	620 West Main Street	9.3	No
8	Oakwood Park	Active	1500 Melton Avenue	6.0	No
9	Oregon Hill Park	Passive	714 South Pine Street	5.0	Yes
10	Pollard Park	Passive	3000 West Ladies Mile Road	4.2	No
11	Taylor's Hill Park	Passive	2100 East Franklin Street	4.3	Yes

Additionally, all parks throughout the City of Richmond were classified as a 'Neighborhood Park', 'Mini-Park', 'Community Park', or 'Regional Park' based on their total acreage. Neighborhood Parks are different than other types of parks due to their total acreage. Other parks, like Regional and Community Parks are larger in size and service area than Neighborhood Parks whereas Mini-Parks are smaller in comparison. This metric was based on the park size classification by the City of Munster, Indiana that classified parks into 5 different categories based on their size and their service areas (City of Munster, 2017).

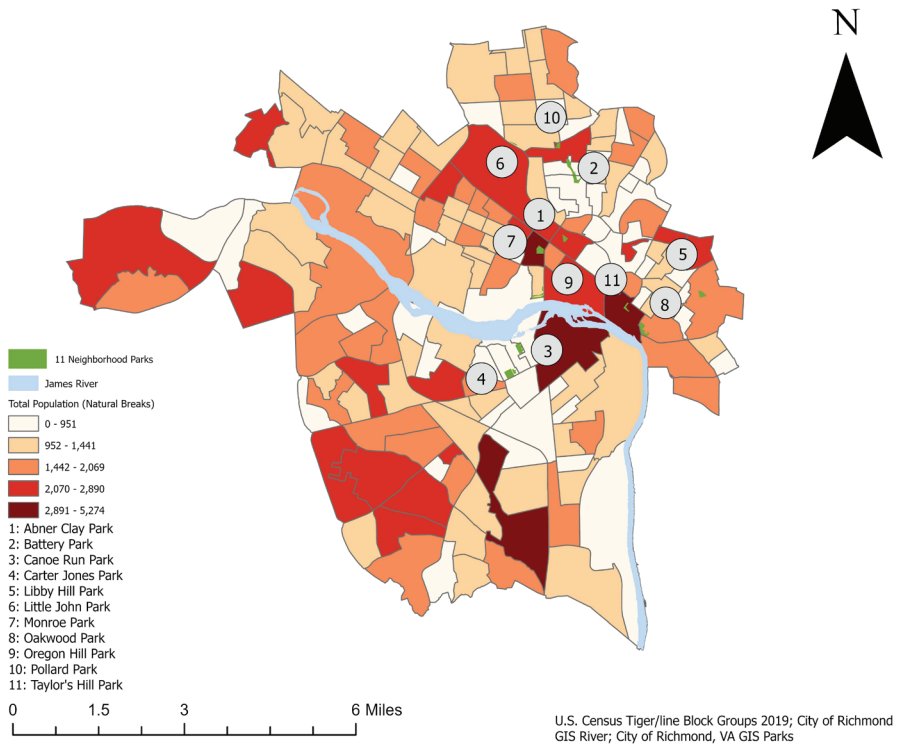
According to these metrics, a 'Neighborhood Park' is a park that is between 5-10 acres (but can be slightly outside of this range) and serves between ¼-½ of a mile service area. For this plan, parks that were identified as 'Neighborhood Parks' were chosen for further study due to their acreage and wide range of amenities and location throughout the City of Richmond.

In addition to these parks' classification as 'Neighborhood Parks', they were also classified as either 'passive' or 'active' according to Oklahoma City's 2013 definition of recreational type based on their existing amenities (Oklahoma City, 2013). This additional differentiation of neighborhood parks based on recreation type (active or passive) allows for a more in-depth analysis to occur that compares parks with similar amenity types as well as identify additional needs based on the recreation types available to residents.

Demographics

Population

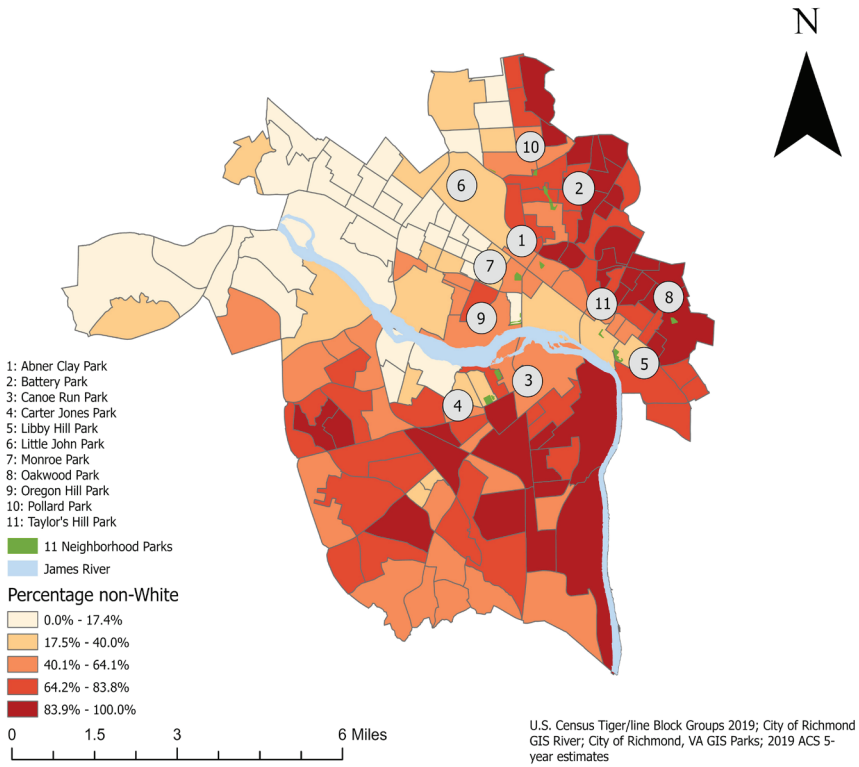
In 2019, the City of Richmond's total population was 226,622 according to the American Community Survey (ACS, 2019) (note: all further mentions of the ACS 2019 refers to the American Community Survey 5-year estimates). This is an increase of 11.4 percent since 2010 when the City's population was 204,214 (U.S. Decennial Census, 2010). This increase of population demonstrates the importance of parks and green spaces throughout the City of Richmond as well as the significance of the location of existing amenities. Map 2 below demonstrates the population distribution by block group for the City of Richmond, Virginia in 2019.



Map 2: City of Richmond, Virginia Total Population 2019

Race

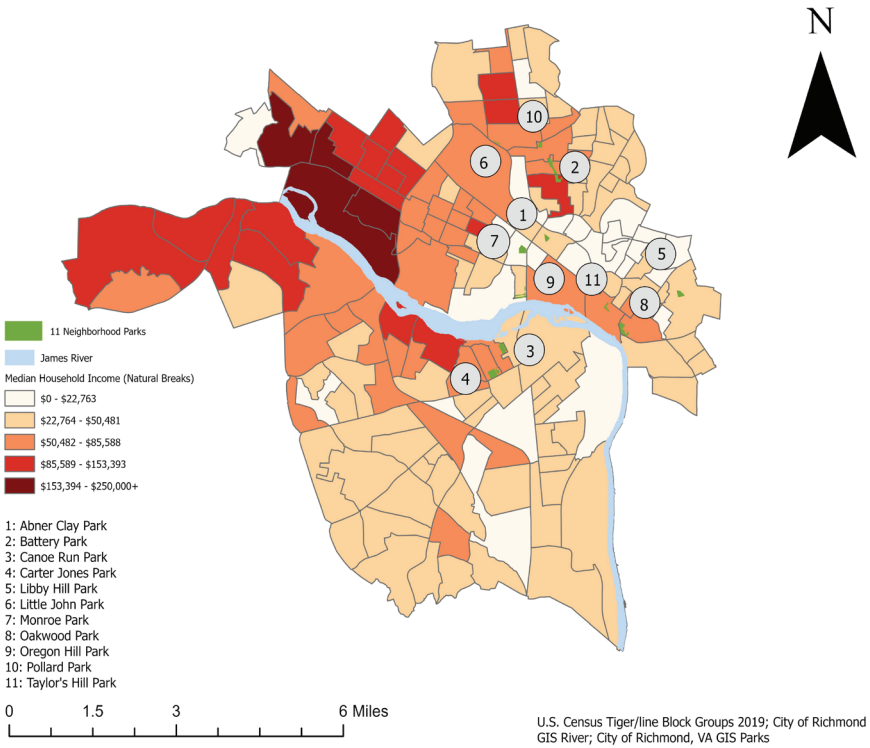
Additionally, the racial breakdown of the City of Richmond is important in recognizing which groups have access to parks and green spaces throughout the city. The intersection of race and park space/quality is important to recognize and understand the role that historically racist policies have shaped- and continue to shape- urban environments. According to the Trust for Public Land, "parks serving primarily non-White populations are half the size of parks that serve majority white populations and five times more crowded" (Trust for Public Land, 2020). This finding is an important aspect of spatial disparity that will be examined with this project as well as park amenity quality and quantity throughout the City of Richmond. Map 3 below demonstrates the percent of the population that identify as non-White alone throughout the City of Richmond in 2019.



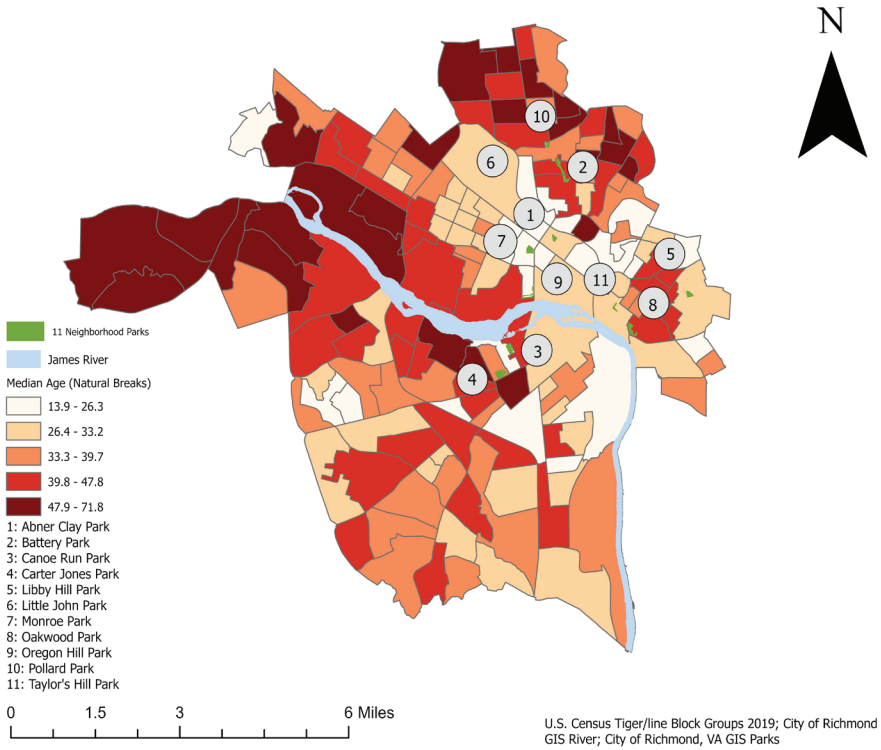
Map 3: City of Richmond, Virginia Percentage non-White 2019

Median Household Income

Another important factor of park access is understanding the Median Household Income (MHI) of the surrounding community. For example, a study found that there is a correlation between income and vegetation distribution in neighborhoods throughout their sample city (Nesbitt et al, 2019). Understanding and analyzing the distribution of median household income is also important in understanding who has the ability to access parks and the amenities that they desire to use. Map 4 below demonstrates the Median Household Income distribution by block group for the City of Richmond in 2019.



Map 4: City of Richmond, Virginia Median Household Income 2019



Map 5: City of Richmond, Virginia Median Age 2019

Median Age

Finally, this project focuses on age and its impact on park amenity usage. As discussed previously, Baran et al (2013) found that different park amenities are used more frequently depending on age group. For example, Baran et all found that adolescents and adults were more likely to utilize passive recreation amenities like benches, picnic shelters, and tables whereas children more frequently utilized active recreation amenities like playgrounds and athletic fields. Median age is used to identify the location of passive and active recreational amenities in neighborhood parks throughout the City of Richmond. Map 5 below shows the Median Age in 2019 throughout the City of Richmond.

Approach

This methodology is focused around the relevant research questions identified throughout the existing conditions analysis. These questions aim to identify if there are existing spatial disparities in park amenities throughout the City of Richmond and, if so, which projects should be prioritized by the City. These research questions are included in Table 2 below.

Table 2: Research Questions
Which demographic groups based on race, median household income, or age have access to park amenities within ¼ or ½ a mile from their homes?
What is the existing quality of park amenities (of those listed in Appendix B)?
Where are disparities in the quality and quantity of park amenities located throughout the City of Richmond?

These questions were chosen per the literature review which identified differences in accessibility and utilization of neighborhood parks by race, median household income, and median age. Similarly, these questions aim to understand where existing disparities are located throughout the City of Richmond based on the existing quality and quantity of amenities. Additionally, this methodology includes an in-person observational study. This study, based around a static rubric, provides insight as to which park amenities are present throughout the City of Richmond. Additionally, this methodology focuses on a park's classification system that disseminates parks on their physical characteristics.

Classification of Parks

A classification tool similar to those of Big Lake and Morgan Hill will allow for the City of Richmond's parks to be analyzed on a quantitative level prior to focusing on the physical disparities present in the existing structures. Additionally, through the creation of a classification matrix, the distribution of these resources can be analyzed via ArcGIS to understand the existing spatial disparities in park amenities throughout the City of Richmond as well as the quality of these amenities.

This analysis of the quality amenities is done by overlaying the quality scores from 'Neighborhood Park Amenity Assessment' with data layers from the ACS 2019 to identify deficits between ¼ to ½ mile buffer ranges to identify any disparities in the demographic (race, age, and median household income) groups who have access to quality amenities. Through this approach, the City of Richmond's neighborhood park amenities can be analyzed and existing disparities both in the physical conditions and the spatial distribution of resources can be identified.

Additionally, these parks provide a range of amenities that impact the way that the park itself is used. In order to further disseminate between these parks and their amenities, parks are categorized by active and passive based on their existing amenities. Parks that provided active recreation had amenities that included play structures, court games, tennis and volleyball courts, and outdoor exercise structures whereas parks that were categorized as passive recreation had amenities that included internal walking trails, open space, gardens, and people watching areas per Oklahoma City's 2013 definitions. These classifications allow for park amenities to be compared to parks of similar recreational uses throughout the City of Richmond to further understand the distribution and quality of park amenities throughout the 11 neighborhood parks.

Observational Study

This observational study worked to eliminate as many errors as possible throughout studying the different parks by creating a similar time frame for each of the 11 neighborhood parks. All park observations took place on weekends (Saturday-Sunday) in the afternoon (11am-4pm). Additionally, all observations lasted 1.5 hours and were centered around a static rubric that focuses on qualitative and quantitative data collection. These observations took place during 2021 and 2022. Table 3 is the rubric used for all the observations of the 11 neighborhood parks.

Table 3: Park Observation Rubric									
Park Name		Date		Start Time		End Time		Number of People Observed	
Park Amenities Used (Y/N/N/AV)									
Benches or Chairs	Playgrounds	Picnic Tables	Trash Cans	Exercise Equipment	Tennis Courts	Basketball Courts	Playground or Picnic Shelters	Athletic Fields	Notes

Note: N/AV denotes that this park lacks this amenity

An observational study was chosen to prevent over surveying the existing population of park users throughout the City of Richmond. Additionally, this observational study does not aim to create assumptions on how park amenity quality impacts usage but, instead, aims to understand the existing amenities at each neighborhood park and collect site photographs.

Spatial Disparities Analysis

Additionally, a spatial disparities analysis was performed in 2022 to evaluate the existing conditions of park amenities in the 11 neighborhood parks. This spatial disparities analysis identifies where amenities in neighborhood parks are located and what is the quality of amenities throughout the City of Richmond. Additionally, this spatial disparities analysis identifies which demographic groups (race, median household income, and age) have access to these amenities. This spatial disparities analysis collects data through the assessment tools 'Neighborhood Park Amenity Quality Rubric' in Appendix C and the 'Neighborhood Park Amenity Assessment' in Appendix D to examine the existing conditions of park amenities and the quantity of these resources throughout the City of Richmond. Appendix C, 'Neighborhood Park Amenity Quality Rubric' is based off of the City of Lakewood, Colorado's 2020 'Legacy Plan' and uses a 1-3 scale in evaluating the quality of park amenities with 1 representing poor conditions, 2 representing fair conditions, and 3 representing good conditions of park amenities. Each category provides individual indicators based on park amenity and provides a visual example of each category. Using this rubric along with the 'Neighborhood Park Amenity Assessment' the quality and quantity of Neighborhood park amenities can be assessed and compared.

Similarly, this method of assessment was put into Survey 123, a function of ArcGIS, to capture information regarding the location of each amenity within the park, its quality, if vandalism was present, as well as an image of each park amenity. Each park will be analyzed as an independent space and an average score of each park amenity will be determined based on the mean quality score for each amenity and each amenities quantity within the park. This scoring will be used to identify any trends in the quality of park amenities based on location throughout the City of Richmond. Additionally, comparisons between the parks in each recreation type category (active or passive) will be compared within their designated groups to identify possible trends in the quality of park amenities across similar spaces.

Additionally, this analysis focuses on identifying disparities in the quality and quantity of park amenities and identifying which populations have direct access to these resources within a target distance of between ¼-½ a mile. Using a buffer analysis overlaid with ACS 2019 for the City of Richmond, a direct focus on race, median household income, and age is analyzed to identify deficits of the demographic groups within these ranges. These study groups were chosen in accordance with existing data that has found differences in park amenity usage by age, race, and median household income. Using this method of comparing average quality scores by demographic groups, this analysis aims to identify spatial disparities among different demographic groups and identify target areas for improvement for the Department of Parks and Recreation. This analysis focuses on the creation of equitable outcomes throughout the City of Richmond and in providing the Department of Parks and Recreation with incremental steps for completion of these improvement projects.

Overview

Using this methodology, both an observational study and park quality assessment were conducted to analyze the quality and quantity of existing neighborhood park amenities. This study found existing disparities in the access to high-quality, quantity, and diverse types of neighborhood park amenities present throughout the City of Richmond, Virginia.

Observational Study Findings

Throughout 2021 and 2022, all 11 of the neighborhood parks were observed on weekend days for 1.5 hours to collect site photographs and additional information. A breakdown of these observations per the rubric are shown in Appendix E.

Findings for these observations included which amenities were used by residents at each of the neighborhood parks as well as additional notes for each park. Similarly, some parks experienced greater usage during the observations compared to other parks. Two parks, Oregon Hill Park and Little John Park, both had nobody use the park during the observation period. Both of these parks are classified as passive parks, all of which had lower usage in comparison to active parks with the exceptions of Libby Hill Park and Monroe Park. Additionally, out of all of the 11 parks observed, Monroe Park had the highest number of people who utilized the park during the observation period with over 50 people.

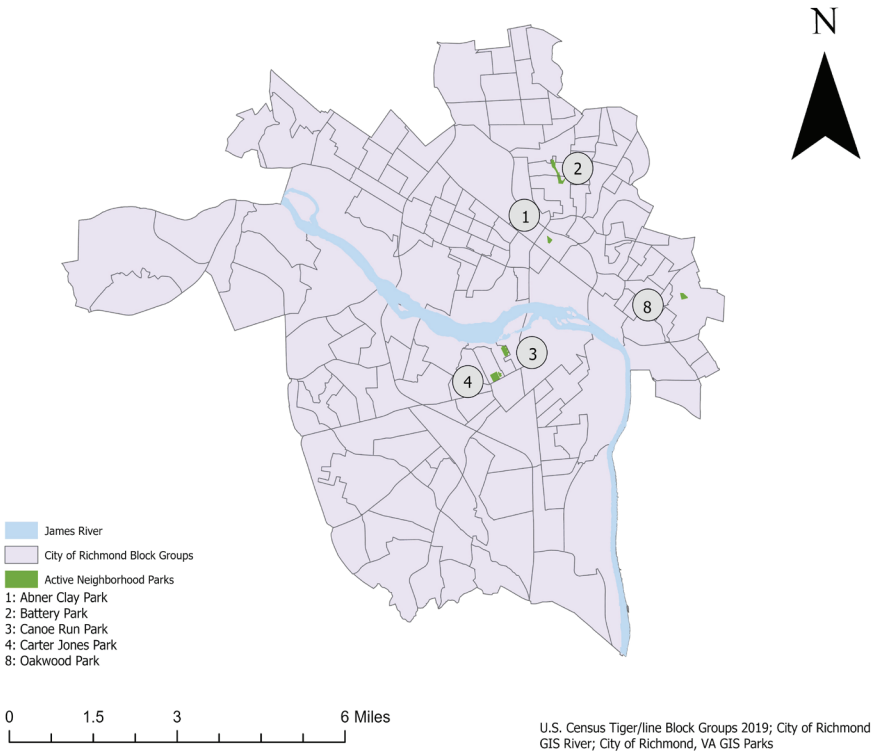
Park Quality Assessment

Using this methodology, over 350 amenities were assessed across the City of Richmond between January and February 2022. Using Survey 123, a survey was created to collect on-site data while also capturing the locations of each amenity within the park itself. This also included questions focusing on the 1-3 scale, in which these amenities were assessed on their structural quality with additional sections to collect data on if vandalism was present and an image of the amenity.

For image scaling, amenities that scored a 1 were colored red, amenities that scored a 2 were colored yellow, and amenities that scored a 3 were colored green. As previously mentioned, these parks were separated by recreation type as shown below in order to compare parks of similar uses across the City of Richmond.

Active Neighborhood Parks

Of the 11 neighborhood parks selected, 5 of which are classified as active parks. These parks include opportunities for active recreation which includes tennis courts, basketball courts, and multi-use athletic fields as well as traditionally passive amenities. The 5 active neighborhood parks this plan focuses on are Canoe Run Park, Carter Jones Park, Abner Clay Park, Battery Park, and Oakwood Park and Playground. *Map 5* below shows the locations of these parks throughout the City of Richmond, Virginia.



Map 6: City of Richmond, Virginia Active Neighborhood Parks

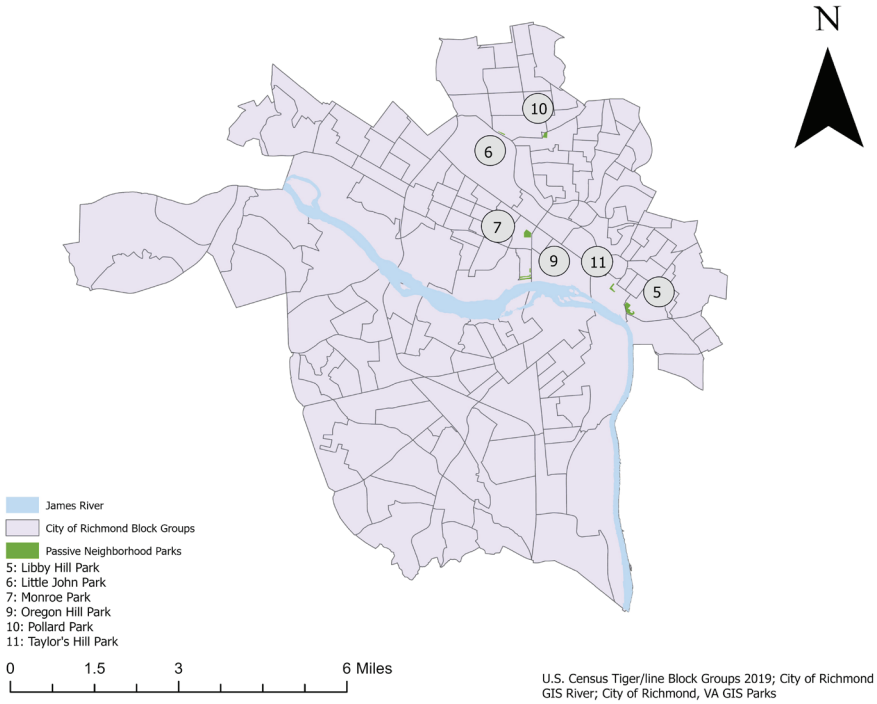
Of the 5 neighborhood parks surveyed, there were 182 amenities assessed. A full breakdown of these amenities by park is included in Appendix E. The highest concentration of low scoring amenities was in Carter Jones Park located in Southside where 22 out of the total 51 (42.3%) amenities at this park scored a 1 on the scoring rubric. This was, largely, due to a broken and dilapidated benches throughout the park along with extremely worn down basketball and tennis courts. Additionally, Canoe Run Park and Oakwood Park also had low-quality exercise equipment, playground/picnic shelters, and tables. As previously referenced, all scoring was done using a 1-3 grading scale. Additionally, individual maps of each of the active neighborhood parks is included in Appendix F.

Table 4: Average Scoring of Active Neighborhood Park Amenities

	Bench or Chair	Trash Can	Table	Playground	Tennis Courts	Playground or Picnic Shelter	Basketball Court	Athletic Field	Exercise Equipment
Abner Clay Park	2.9	3.0	3.0	3.0	-	3.0	3.0	2.0	-
Battery Park	2.7	2.4	3.0	2.0	2.3	2.6	2.0	-	-
Canoe Run Park	2.4	2.3	2.0	3.0	-	2.3	-	-	1.8
Carter Jones Park	1.5	2.5	2.9	1.5	1.0	1.5	1.0	2.0	-
Oakwood Park	2.5	2.5	2.0	2.0	-	2.7	-	3.0	2.3

Passive Neighborhood Parks

Out of the total 11 neighborhood parks, 6 are classified as passive. These parks include Libby Hill Park, Little John Park, Monroe Park, Oregon Hill Park, Pollard Park, and Taylor's Hill Park. Between these parks a total of 170 amenities were assessed with amenities focused on passive recreation such as benches, tables, and chairs. The locations of the 6 passive neighborhood parks are shown below in Map 7.



Map 7: City of Richmond, Virginia Passive Neighborhood Parks

Additionally, each neighborhood park amenities were assessed using a version of the Neighborhood Park Amenity Assessment in conjunction with the ArcGIS tool Survey123. This assessment captured the location of park amenities, their quality, if vandalism was present, as well as an image of each neighborhood park amenity in each of the 6 passive neighborhood parks. The outcomes of these assessments are broken down by each passive neighborhood park below and demonstrates the existing concentrations of low-scoring neighborhood park amenities as well as the quantity concentrations of amenities for each of the assessed parks.

Of the 6 passive neighborhood parks, Monroe Park had the most amenities, with 115 in total, and both Little John and Pollard Park had the lowest number of total amenities with 4 each. Monroe Park and Libby Hill Park, also, consistently had the highest scoring amenities of any other neighborhood park, despite the fact that these parks had the two highest numbers of amenities for

for passive neighborhood parks. Similarly, Monroe Park also had the highest number of amenities with vandalism present among all neighborhood parks with 56 out of the park's 115 amenities having vandalism present. Additionally, although Oregon Hill Park only had a total of 11 amenities, it scored the lowest in the average quality of trash cans, playground/picnic shelters, and tables of any other passive neighborhood park. The average scoring of passive neighborhood park amenities is shown below in Table 5.

Table 5: Average Scoring of Passive Neighborhood Park Amenities

	Bench or Chair	Trash Can	Table	Playground or Picnic Shelter
Libby Hill Park	3.0	2.3	3.0	-
Little John Park	2.0	2.5	-	-
Monroe Park	2.9	2.7	2.8	3.0
Oregon Hill Park	3.0	1.5	1.5	1.0
Pollard Park	-	2.3	-	-
Taylor's Hill Park	2.7	2.5	-	-

Additionally, all of the Survey 123 data summarized above is available for viewing on ArcGIS online. Although clear deficits exist in the quality of neighborhood park amenities across the City of Richmond, there are strengths, weaknesses, and opportunities for the City of Richmond to focus on to expand upon the availability of quality neighborhood park amenities while focusing on the equitable distribution of these amenities throughout the City of Richmond. Through these recommendations, the City of Richmond can focus on creating a more equitable environment and expand the accessibility of neighborhood park amenities for all residents through an incremental approach to completion.

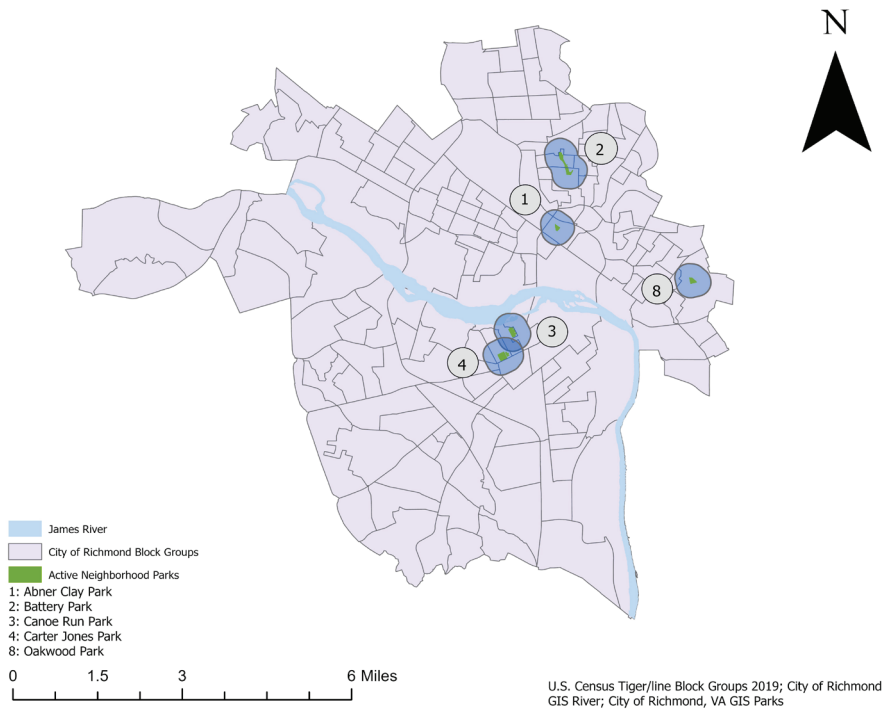
Spatial Analysis

Using buffers of ¼ and ½ a mile in ArcGIS, the total population, percentage of White identifying individuals, median age, and median household income were identified for these areas surrounding the 11 neighborhood parks. These buffers were created and then intersected with the City of Richmond's Block Groups (2019) and used in conjunction with American Community Survey data from 2019 for these demographics to identify which groups have equitable access to these neighborhood parks.

A ¼ mile buffer around the 11 neighborhood parks, the total population, number of White identifying persons, median age, and median household income were identified. To calculate the total population and total population White, a 1/4 mile buffer was placed around each of the 11 selected neighborhood parks. This buffer was then intersected with the City of Richmond's block groups from 2019. After this, the demographic data for total population and total population White were summarized by each neighborhood park to find the aggregate of all of the block groups that the 1/4 mile buffer intersects with. Additionally, for Median Household Income and Median Age, a similar methodology was used in creating a buffer and intersecting it with the City of Richmond's block groups. However, for Median Age and Median Household Income, the medians of the Median Household Income and Median Age for all block groups that the 1/4 mile intersects with was calculated using the ArcGIS summarize tool by neighborhood park. This methodology was then replicated for the 1/2 mile buffer zones.

Active Neighborhood Parks

For the 5 active neighborhood parks, a ¼ mile buffer was placed around them to identify which demographic groups have access to their amenities. Map 8 below shows the locations of these buffers throughout the City of Richmond, Virginia.



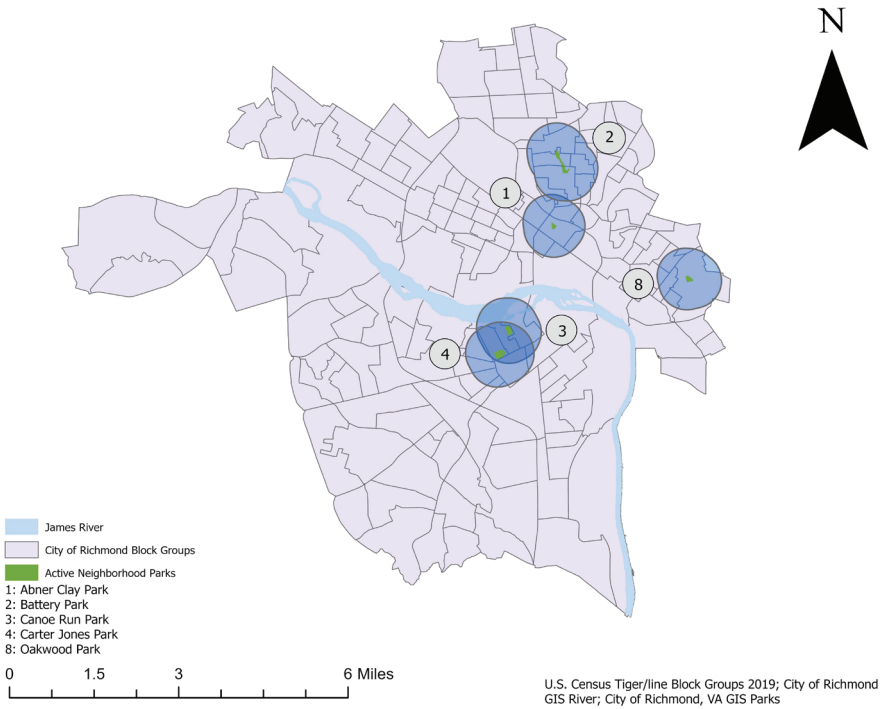
Map 8: City of Richmond, Virginia Active Neighborhood Parks with 1/4 mile buffer

Additionally, a spatial analysis using buffers was used to further identify these populations to understand access to neighborhood park amenities throughout the City of Richmond. Table 6 shows the demographics of total population, total population white, percentage white, median age, and median household income for the ¼ mile buffer surrounding the neighborhood parks.

Table 6: Population Demographics within 1/4-mile buffer of Active Neighborhood Parks

Number	Park Name	Total Population	Population non-White	Percentage non-White	Median Household Income	Median Age
1	Abner Clay Park	22,096	12,760	57.7%	$21,442.50	21.8
2	Battery Park	8,849	6,407	72.4%	$54,250.00	42.0
3	Canoe Run Park	5,022	2,318	46.2%	$54,442.00	35.5
4	Carter Jones Park	9,002	5,035	55.9%	$54,442.00	40.7
8	Oakwood Park	2,473	2,014	81.4%	$42,219.50	36.7

Additionally, this same methodology was used with a ½ mile buffers to identify the populations that reside within this area around the active neighborhood parks. Map 9 shows the ½ mile buffers surrounding the five active neighborhood parks in the City of Richmond.



Map 9: City of Richmond, Virginia Active Neighborhood Parks with 1/2 mile buffer

Table 7: Population Demographics within 1/2-mile buffer of Active Neighborhood Parks

Number	Park Name	Total Population	Population non-White	Percentage non-White	Median Household Income	Median Age
1	Abner Clay Park	41,754	23,848	57.12%	$21,788.00	21.9
2	Battery Park	26,066	18,643	71.52%	$51,964.00	39.7
3	Canoe Run Park	26,051	14,979	57.50%	$45,375.00	40.9
4	Carter Jones Park	23,297	14,043	60.28%	$45,375.00	40.7
8	Oakwood Park	7,390	6,488	87.79%	$23,935.50	43.2

Table 7 above shows the demographic distributions of the 5 active neighborhood parks in the City of Richmond. This data, when compared alongside the data in Table 4, demonstrates the existing spatial disparities of the access, quality, and quantity of active neighborhood park amenities throughout the City of Richmond. For example, Canoe Run and Carter Jones Park, located less than 1 mile from one another, both have existing disparities in the quality of their active and passive amenities. Carter Jones has a high concentration of low-quality (1-scoring) passive amenities (benches) and Canoe Run has a high concentration of fair quality (2-scoring) active amenities (exercise equipment). These concentrations in Southside of the City of Richmond represent an existing deficit in the quality of existing amenities for this community.

Additionally, the park space in square feet and combined quality and quanity for each neighborhood park were calculated on a per capita basis utilizing the combined total population in 2019 for the intersected block groups in the 1/2 mile surrounding the parks. In order to find the combined quality and quantity score per capita of the active neighborhood parks the following calculation was used to find the product of these scores.

(Total Quantity of Park Amenities)*(Mean score of Park Amenities)

This product was then divided by the total population of the intersected block groups within 1/2 mile of each of the active neighborhood parks using the full calculation below.

(Product of Total Quantity of Park Amenities and Mean Score of Park Amenities/Total Population of intersected block groups 1/2 mile)

Additionally, the total park area (in square feet) per capita was also identified using the following calculation.

(Total Park Area (square feet)/Total Population of intersected block groups 1/2 mile)

Additionally, the total park area (in square feet) per capita was also identified using the following calculation.

(Total Park Area (square feet)/Total Population of intersected block groups 1/2 mile)

Together, these scores are used to identify not only disparities in the distribution of park area per capita for the block groups surrounding the active neighborhood parks but also represents the disparities in the distribution of the quality and quantity of park amenities per capita. Table 8 below shows these scores for the 5 active neighborhood parks

Table 8: Park Area and Amenity Quality and Quantity per capita for the City of Richmond, Virginia's Active Neighborhood Parks

Park Name	Park area (sq. feet)	Total Population of intersected block groups 1/2 mile	Total number of park amenities	Mean score of park amenities	Product of total quantity and mean quality score of park amenities	Product of mean quality and total quantity per capita	Product of mean quality and total quantity per capita (*1,000)	Park area (sq. feet) per capita
Abner Clay Park	200,376	41,754	30	2.93	87.90	0.0021	2.11	4.80
Battery Park	514,008	26,066	44	2.45	107.80	0.0041	4.14	19.72
Canoe Run Park	196,020	26,051	28	2.14	59.92	0.0023	2.30	7.52
Carter Jones Park	492,228	23,297	52	1.87	97.24	0.0042	4.17	21.13
Oakwood Park	261,360	7,390	28	2.39	66.92	0.0091	9.06	35.37

Canoe Run Park-

As shown above, Canoe Run has the lowest total amenities and mean score of amenities per capita of any of the active neighborhood parks. With a ½ radius that serves over 26,000 residents, the total number of amenities, 28, along with a mean score of 2.14 on a 1-3 scale, means that the combined quality and quantity score per capita of these amenities is 2.30. Canoe Run Park had existing quality disparities that were weighed down by broken or outdated exercise equipment throughout the park. Similarly, Canoe Run Park also had the second lowest number for park area per capita at 7.52 of all the active neighborhood parks meaning that this park's current area does not adequately meet the needs of the surrounding population. Although repairing these amenities does present an opportunity for the Department of Parks and Recreation, it also allows for the department to reassess the needs of Canoe Run Park and identify locations to increase amenities throughout the park as well.

By increasing the total amount of amenities to adequately meet the needs of the surrounding community, Canoe Run Park can better serve its residents and improve its overall score.

Carter Jones Park-
Similarly, Carter Jones Park, located within 1 mile of Canoe Run Park in Southside, also had a low score of the combined quality and quantity of amenities per capita at 4.17. Carter Jones Park had a high concentration of broken and dilapidated amenities and had the lowest mean score of amenities of all the active neighborhood parks studied. Although this park did have a higher share of amenities at 52 total amenities, the low-quality of these amenities at 1.87 impacted the combined quality and quantity of amenities per capita at 4.17. When analyzed in conjunction with the disparities in Canoe Run Park, these concentrations of low-quality and low-quantity of amenities in Southside between Canoe Run Park and Carter Jones Park only further highlights the spatial disparities to high-quality and high-quantity neighborhood parks for these residents. In 2019, over 60% of residents living in the ½ mile radius surrounding Carter Jones Park identified as non-White meaning that these residents are being disproportionally impacted by the low-quality and quantity of park amenities within their neighborhoods. Although Carter Jones Park does have a higher number of park area per capita at 21.13, the disparities in the quality and quantity of this park's amenities represent a need for reassessment and improvement by the Department of Parks and Recreation. By addressing the concentrations of broken and dilapidated park amenities in Carter Jones Park, the Department of Parks and Recreation can increase the overall quality of this park. Similarly, though identifying locations for additional amenities within this park, the Department of Parks and Recreation can work to increase the total quantity and mean score of amenities within this park and better serve its residents.

Battery Park-
Similarly, Battery Park represents another park with existing disparities in the quality and quantity of amenities per capita at 4.14, the second lowest among the active neighborhood parks. Although Battery Park does have a high amount of park area per capita at 19.72, the low-quality and quantity of the amenities lower the overall score of this park per capita. Of the active neighborhood parks, Battery Park is the only one located in Northside and its ½ mile radius serves over 26,000 residents as of 2019. Additionally, 71.5% of residents living within a ½ mile radius of Battery Park identified as non-White in 2019 and the low-quality and quantity of the amenities in Battery Park represent a direct impact on these residents' access to high-quality park amenities. Similarly, although the mean score of the amenities of Battery Park was 2.45, the low quantity of amenities at 44 does not adequately meet the needs of its existing population. With concentrations of lower scoring amenities in playgrounds, basketball courts, and tennis courts, Battery Park is currently not meeting the needs of its current population both in the quality and quantity of existing park amenities. However, through improving the quality of existing amenities and identifying potential areas for new amenities, the Department of Parks and Recreation can work to expand the available resources to residents living near Battery Park and improve the overall quality of this park.

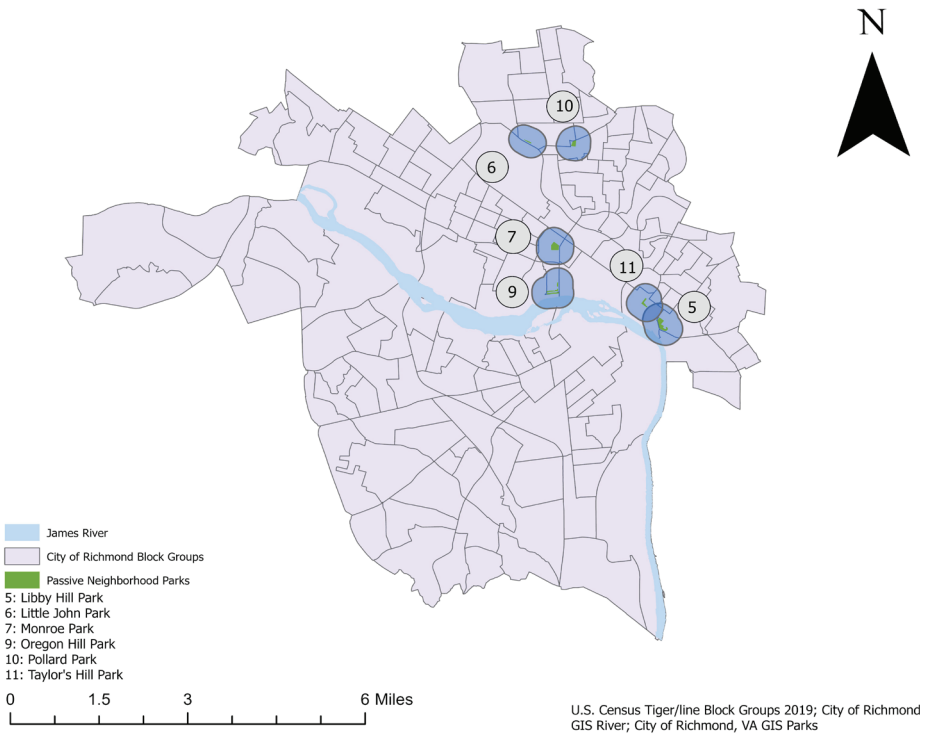
Abner Clay Park-
Additionally, Abner Clay Park represents one of the higher scoring parks based on a mean score of 2.93 while also having a per capita score of 2.11. The disproportionate scoring of Abner Clay Park represents the importance that quantity plays in park accessibility in addition to quality. Abner Clay Park has had ongoing renovations in recent years which has resulted in the updating and improvement of its amenities resulting in its high mean quality score of 2.93, the highest among the active neighborhood parks. However, the quantity of amenities located at Abner Clay Park per capita resulted in this park scoring lower than Oakwood Park as it only has 30 amenities while serving nearly 42,000 residents in a ½ mile radius. Although 30 is not the lowest quantity of amenities amongst all the active neighborhood parks, the ½ mile radius surrounding Abner Clay Park, in Jackson Ward, means that there are fewer amenities per capita in comparison to parks with a more proportionate distribution of amenities per capita. Similarly, Abner Clay Park had the lowest amount of park space per capita at 4.80 which, again, can be attributed to the high population living within the ½ mile radius surrounding this park. Although this park currently has high quality amenities, one opportunity for the Department of Parks and Recreation could be to increase the total number of amenities available at Abner Clay Park in order to better serve its population.

Oakwood Park-

Finally, Oakwood Park was the highest scoring park based on the quality and quantity of amenities per capita at 9.06. Although the mean score of the amenities at Oakwood Park was 2.39, lower than the mean at Abner Clay Park and Battery Park, the lower total number of residents living within a ½ mile radius, 7,390 in 2019, of the park increased the quality and quantity score per capita. Additionally, Oakwood Park had the lowest median household income and the Oakwood Park had the lowest median household income and the highest percentage of non-white residents compared to any of the other active neighborhood parks. Although the current quantity of amenities at Oakwood Park is meeting the needs of its existing population, the low-quality of certain amenities provides opportunities for improvement by the Department of Parks and Recreation. For example, the exercise equipment and playgrounds at Oakwood Park scored relatively low at 2.3 and 2.0 respectively. Through the improvement of these amenities, the Department of Parks and Recreation can increase the overall quality of Oakwood Park and provide better opportunities for recreation of its residents.

Passive Neighborhood Parks

The same methodology was used to identify access to the amenities of the 6 passive neighborhood parks. Map 10 shows the locations of the ¼ mile buffers surrounding the 6 passive neighborhood parks throughout the City of Richmond, Virginia.

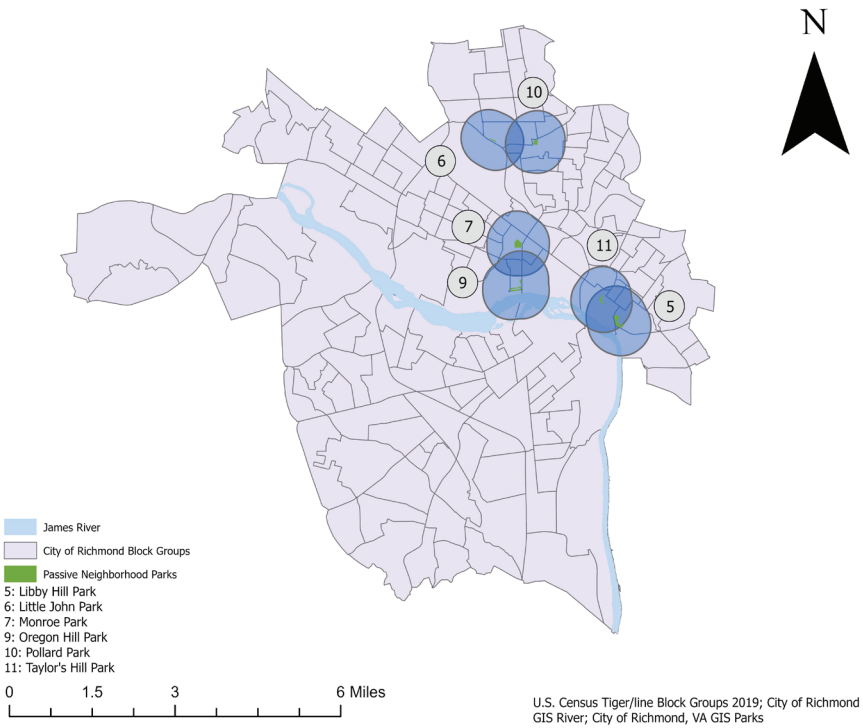


Map 10: City of Richmond, Virginia Passive Neighborhood Parks with 1/4 mile buffer

Table 9: Population Demographics within 1/4-mile buffer of Passive Neighborhood Parks

Number	Park Name	Total Population	Population non-White	Percentage non-White	Median Household Income	Median Age
5	Libby Hill Park	15,209	6,548	43.1%	$54,874.00	32.4
6	Little John Park	6,711	3,118	46.5%	$67,075.50	40.0
7	Monroe Park	26,193	11,350	43.3%	$32,117.00	22.2
9	Oregon Hill Park	10,900	5,211	47.8%	$45,375.00	30.1
10	Pollard Park	8,143	5,422	66.6%	$64,712.00	44.3
11	Taylor's Hill Park	12,853	4,772	37.1%	$54,874.00	34.1

Additionally, this same methodology was implemented using ½ mile buffers to identify the populations that reside within this area surrounding the active neighborhood parks. Map 11 below shows the ½ mile buffers surrounding the five active neighborhood parks in the City of Richmond.



Map 11: City of Richmond, Virginia Passive Neighborhood Parks with ½ mile buffer

Additionally, using the same methodology as before, the demographics and population of the block groups that intersect with the 1/2 mile buffer surrounding the 6 passive neighborhood parks was calculated. Table 10 below shows these numbers for the 1/2 mile area surrounding the passive neighborhood parks.

Table 10: Population Demographics within 1/2-mile buffer of Passive Neighborhood Parks

Number	Park Name	Total Population	Population non-White	Percentage non-White	Median Household Income	Median Age
5	Libby Hill Park	22,746	11,768	51.7%	$48,181.50	32.4
6	Little John Park	20,262	11,008	54.3%	$64,712.00	39.7
7	Monroe Park	52,167	24,730	47.4%	$30,520.00	24.7
9	Oregon Hill Park	42,420	20,602	48.6%	$44,615.00	29.3
10	Pollard Park	28,641	18,189	63.5%	$54,712.00	44.3
11	Taylor's Hill Park	31,401	16,931	53.9%	$44,856.00	29.2

Table 10 shows the demographic distributions of the 6 passive neighborhood parks in the City of Richmond based on 2019 ACS data. This data was then computed using the same methodology as for the active neighborhood parks to find the park area per capita, the product of the mean quality and the sum of the quantity of amenites, and the combined product of mean quality and total quantity of amenities per capita using the total population of the 1/2 mile area surrounding the passive neighborhood parks. Table 11 below shows these calculations for the 6 passive neighborhood parks.

Table 11: Park Area and Amenity Quality and Quantity per capita for the City of Richmond, Virginia's Passive Neighborhood Parks

Park Name	Park area (sq. feet)	Total Population of intersected block groups 1/2 mile	Total number of park amenities	Mean score of park amenities	Product of total quantity and mean quality score of park amenities	Product of mean quality and total quantity per capita	Product of mean quality and total quantity per capita (*1,000)	Park area (sq. feet) per capita
Libby Hill Park	304,920	22,746	31	2.70	83.70	0.0037	3.68	13.41
Little John Park	56,628	20,262	4	2.25	9.00	0.0004	0.44	2.79
Monroe Park	405,108	52,167	115	2.88	331.20	0.0063	6.35	7.77
Oregon Hill Park	217,800	42,420	11	2.27	24.97	0.0006	0.59	5.13
Pollard Park	182,952	28,641	4	2.25	9.00	0.0003	0.31	6.39
Taylor's Hill Park	187,308	31,401	5	2.60	13.00	0.0004	0.41	5.97

Pollard Park-

As shown above in Table 11, there are existing spatial disparities between the passive neighborhood parks based on total quantity, mean quality score, and total park area (in square feet). Out of all these 6 passive neighborhood parks, Pollard Park scored the lowest when mean quality score and total quantity were combined and divided by the total population within a ½ mile radius of the park. At 0.31, Pollard Park is currently lacking in both the quality and quantity of existing amenities and, as a result, are not meeting the needs of the surrounding community. Pollard Park had, in total, 4 amenities, all of which were trash cans with a mean score of 2.25 on a 1-3 scale. Not only is there a lack of variety in the types of amenities available at Pollard Park but the total quantity and quality of the existing amenities do not meet the needs of the nearly 29,000 residents living within a ½ mile radius of the park.

Additionally, Pollard Park had highest percentage of non-white residents (66.6% in 2019) of all the passive neighborhood parks. The lack of quality and quantity of the existing amenities presents an equity issue for the residents who depend on this park for recreation. Although the surrounding area does have the second highest median household income of the passive neighborhood parks, the lack of diversity of park amenities along with a lack of total quantity and quality of amenities presents a significant deficit in the utilization of this park. Additionally, although Pollard Park is meeting the needs of the surrounding community based on total park area with a park area to population ratio of 6.39, the existing disparities in the quality and quantity of amenities does present an opportunity for the Department of Parks and Recreation. In order to improve this space and increase the accessibility of park amenities for residents living near Pollard Park, it is essential that the Department of Parks and Recreation focus on the expansion of amenities within Pollard Park to include additional amenities, outside of just trash cans, in order to optimize the utilization of this park space and improve the overall quality of the park.

Little John Park-
Similarly, Little John Park, located within 1 mile of Pollard Park, also has existing disparities in the combined mean quality and total quantity of park amenities per capita with 0.44. Little John Park, similar to Pollard Park, has only 4 total amenities, two of which are benches and the other two are trash cans, with a mean quality score of 2.25. In addition to this, Little John Park also had the lowest park area per capita ratio at 2.79. Although Little John Park had the highest median household income for the surrounding block groups at nearly $65,000 in 2019, the existing disparities in the distribution of park amenities for residents living within a ½ mile radius of this park are evident through the low-quality and quantity of amenities available to these residents. Additionally, when compared along with Pollard Park, which is a 1 mile distance from Little John Park, the distribution of these amenities represents a larger issue of accessibility to high quality and quantity of amenities for residents in Northside. In order to strengthen the accessibility of residents to higher quality and quantity of amenities, it is essential that the Department of Parks and Recreation focus on both Pollard Park and Little John Park to expand passive recreational amenities in Northside. Through the expansion of the quantity of amenities available at Little John Park, the overall combined quality and quantity score of this park per capita can be increased for residents living near Little John Park.

Taylor's Hill Park-
Furthermore, the existing disparities in the mean quality and quantity of park amenities per capita for Taylor's Hill Park are evident with its score of 0.41. Although Taylor's Hill Park has a sufficient park area per capita ratio of 5.97, the lack of quantity of its park amenities presents a significant deficit in this park. Taylor's Hill Park scored fairly well in terms of the overall mean quality of its existing amenities at 2.60 on a 1-3 scale; however, there were only 5 amenities present at this park to be assessed. With other parks nearby, like Libby Hill Park, which have various amenities that adequately address the needs of its community, Taylor's Hill Park is currently not adequately utilizing its space to provide amenities to its residents. Additionally, Taylor's Hill Park has a viewshed overlooking Downtown and Shockoe Bottom. This viewshed provdes great opportunities for growth in Taylor's Hill Park in order to capitalize off of this natural feature. Through the expansion of the quantity of available amenities at Taylor's Hill Park, the Department of Parks and Recreation can better utilize Taylor's Hill Park and ensure that all residents living within a ½ radius of this park have sufficient access to amenities.

Oregon Hill Park-
Additionally, Oregon Hill Park has existing deficits in the overall mean quality and quantity of park amenities per capita at 0.59. This can be attributed to the lack of overall amenities available at the park with 11 total amenities with a mean score of 2.27 on a 1-3 scale. Although there was decent variation in the types of amenities present, the low quantity of amenities available along with the low quality represents existing spatial deficits in Oregon Hill Park. Although the park space is adequate per capita for the community at 5.13, the existing disparities in quality and quantity represent a significant deficit within this park.

With mean scores of 1.5 for trash cans, 1.5 for tables, and 1.0 for playground/picnic shelters, Oregon Hill Park's overall lack of quality and quantity weigh down the overall quality of this park. Additionally, when compared to Monroe Park, which is less than 1 mile away from Oregon Hill Park, these deficits are even further highlighted as the lack of overall quantity and quality in Oregon Hill Park are not adequately addressing the community's needs. In order to better serve the community, the Department of Parks and Recreation should work to improve the existing deficits in the quality of the trash cans, tables, and playground/ picnic shelters as well as focus on increasing the total quantity of amenities available at Oregon Hill Park.

Libby Hill Park-
Conversely, Libby Hill Park scored higher in the mean quality and quantity of park amenities per capita at 3.68. The amenities at Libby Hill Park had a mean score of 2.70 for a total of 31 amenities, the second highest scoring both in the quality and quantity of all the passive neighborhood parks. Additionally, of all the amenities available at Libby Hill Park the only amenity that did not score a 3.0 on the 1-3 scale was trash cans which had a mean score of 2.30. Additionally, Libby Hill Park had the highest score of park area per capita amongst all of the passive neighborhood parks at 13.41. In its current state, the distribution of higher quality and quantity of amenities at Libby Hill Park represents a strength amongst the passive neighborhood parks. With a similar topography to Taylor's Hill Park, the utilization of space at Libby Hill Park could be adapted at Taylor's Hill Park in order to expand amenities in the east-end in order to not only expand the availability of high quality and quantity amenities but also utilize the natural features available at the park.

Monroe Park-
Finally, Monroe Park scored the highest in the mean quality and quantity of park amenities per capita at 6.35 of all the passive neighborhood parks. Monroe Park did have renovations that recently ended in 2018 which has resulted in higher quality amenities. Additionally, the high quantity of amenities available at Monroe Park, a total of 115, is a result of the utilization of stand-alone chairs alone chairs throughout the park which allow for residents to transform the space based on their existing needs. Additionally, Monroe Park scored the second highest amongst the passive neighborhood parks for the park area per capita ratio at 7.77. In its current state, the distribution of both high quality and high quantity amenities in Monroe Park adequately meets the surrounding communities needs and also reflects the adaptability of spaces through the incorporation of stand-alone, movable, chairs. Although this park is currently rated high, it is crucial that the Department of Parks and Recreation maintain the continual upkeep of this park to ensure that this park continues to meet the needs of the community through providing both high quality and high quantity amenities.

Strengths, Weaknesses, and Opportunities-
These 11 neighborhood parks all had their own strengths, weaknesses, and opportunities in terms of their quality, diverse offerings of amenities, and accessibility. Through this analysis of existing spatial disparities in terms of quality, quantity, and accessibility of neighborhood parks amenities. Below are the strengths, weaknesses, and opportunities for the Department of Parks and Recreation to focus on in their future analysis of their existing parks, extending beyond just the 11 neighborhood parks that this plan focuses on, in order to improve the overall connectivity and longevity of the City of Richmond's parks.

Strengths
One of the core strengths of these 11 neighborhood parks is the overall high-quality of certain parks like Monroe Park, Libby Hill Park, and Abner Clay Park. These parks offer a diverse selection of park amenities that provide an abundance of opportunity for the surrounding community. Additionally, the two most recently renovated neighborhood parks, Abner Clay Park and Monroe Park, offer precedent for the Department of Parks and Recreation in terms of future park renovations projects. These two parks offered diverse, high-quality park

amenities that appeal to the community's needs in order to create lively park spaces. Additionally, parks with higher scores for the product of the mean quality and sum of total amenities per capita, such as Monroe Park with a score of 6.35, Libby Hill Park with a score of 3.68, and Abner Clay Park with a score of 6.18 represent existing strengths amongst these 11 neighborhood parks. Additionally, these parks can be used by the Department of Parks and Recreation as examples in the future improvement of the remaining neighborhood parks due to the high-quality and quantity of exiting amenities as well as the diverse types of amenities offered at each of these parks.

Weaknesses

One weakness of these 11 selected neighborhood parks is the concentrations of low-scoring amenities in Northside and Southside. In Carter Jones Park and Canoe Run Park, both located in Southside, there are concentrations of low-scoring, and sometimes completely broken, park amenities clustered in these parks. With the score of the product of the mean quality and sum of total amenities per capita for Carter Jones Park and Canoe Run Park being 4.17 and 2.30 respectively, these existing disparities in the quality and quantity of existing amenities not only limits the ability of residents in utilizing these amenities but also creates an accessibility issue where residents do not have adequate access to high-quality park amenities.

Similarly, there is a lack of diversity of park amenities in Northside as seen in Pollard Park and Little John Park. This lack of diversity of park amenities of these neighborhood parks creates a significant deficit in the availability of park amenities in this area and forces residents to travel outside of the 1/4-1/2 mile area surrounding their residence to access certain park amenities. Finally, there are existing deficits in who has adequate access to neighborhood park amenities. This can be seen in Oakwood Park, the park with the highest percentage of minorities in the 1/4 and 1/2 mile surrounding area. Oakwood Park is completely isolated from the other neighborhood parks and, as a result, residents are reliant upon this one park for recreation.

Although Oakwood Park scored the highest for the product of the mean quality and sum of total amenities per capita at 9.06, this park did have disparities in the quality of its existing amenities with a mean quality score of 2.39. With Oakwood Park being isolated from the other neighborhood parks, this does present a disparity in residents' access to high-quality park amenities, even though they have access to an adequate quantity of amenities per captia. Through addressing the existing disparities in the quality, quantity, and types of park amenities avaiable to residentes, the Department of Parks and Recreation can work to better serve its residents throughout the City of Richmond, Virginia.

Opportunities

One major opportunity in terms of accessibility of park amenities is for the City of Richmond to extend their GRTC line to better connect residents to neighborhood parks. This is essential for neighborhoods, like Oakwood Park, that are isolated in comparison to other areas that have higher concentrations of neighborhood parks nearby. Additionally, another opportunity for the Department of Parks and Recreation is to utilize the diverse topography of these 11 neighborhood parks in order to create diverse, and attractive neighborhood parks. Taking note from Libby Hill Park, where its hill has become an attraction for residents and tourists, trying to adapt existing neighborhood parks to incorporate their diverse topography could elevate parks, like Taylor's Hill Park, to showcase its view of the City of Richmond.

Similarly, there are significant opportunities for the improvement of the quality, quantity, and diverse types of neighborhood park amenities amongst the 11 neighborhood parks. In parks, such as Pollard Park, Little John Park, and Taylor's Hill Park, there is an opportunity for the Department of Parks and Recreation to expand the existing types of amenities offered to include at least three different types of amenities.

Additionally, in these three parks, there is an opportunity to expand the total quantity of existing amenities as such would increase their scores for the product of the mean quality and sum of total amenities per capita.

With scores such as 0.31 in Pollard Park, 0.41 in Taylor's Hill Park, and 0.44 in Little John Park, these neighborhood parks are currently lacking in the quality and quantity of amenities per capita. Although a deficit, this does present an opportunity for the Department of Parks and Recreation to address these issues in order to increase the roduct of the mean quality and sum of total amenities per capita and, in turn, better serve its residents.

Oakwood Park, 2022
Photo Credit: Molly Mallow

Overview

These goals, objectives, and actions align with the City of Richmond Department of Parks and Recreation's mission of providing recreation and leisure programs aimed to improve the quality of life of residents and visitors of Richmond, Virginia. These goals with a focus on equitable access, high-quality amenities, and diverse park amenities aim to improve the lives of the City of Richmond's residents and visitors and improve the overall quality of neighborhood parks throughout the city.

Vision Statement

All residents of the City of Richmond, Virginia have equitable access to diverse, high-quality neighborhood park amenities that meet the needs of their community within ½ a mile of their residence.

Goals, Objectives, and Actions

Goal 1: High-quality neighborhood park amenities

This goal focuses on improving the quality of neighborhood park amenities throughout the City of Richmond, Virginia. One common theme throughout the 11 parks surveyed was the lack of consistency in the quality of amenities. With concentrations of low quality amenities in parks like Canoe Run Park, Carter Jones Park, Battery Park, and Oakwood Park, the need for immediate improvement of existing amenities is necessary to ensure equitable access for all residents. Through a Parks Maintenance Plan in collaboration with the Department of Public Works and other stakeholder groups, the Department of Parks and Recreation can work to address existing concerns regarding dilapidated amenities in its neighborhood parks.

Objective 1.1: Address existing concerns regarding dilapidated amenities in neighborhood parks

Action 1.1.1: Repair all broken or dilapidated benches, tennis courts, playgrounds, and basketball courts in Carter Jones Park

Fix all 11 broken benches in Carter Jones Park along with the dilapidated tennis courts, playground, and basketball courts. This existing concentration not only substantially impacts the overall quality of this park but also impacts the ability of nearby residents to access high-quality amenities.

Action 1.1.2: Update or repair all exercise equipment in Canoe Run Park and Oakwood Park

Exercise equipment in both Canoe Run Park and Oakwood Park were low-quality, broken, or outdated. These structures should be updated and/or fixed to improve these structures and ensure that they remain usable and accessible.

Action 1.1.3: Repair all broken or dilapidated basketball courts, playgrounds, and tennis courts in Battery Park.

The mean score of Battery Park's basketball courts, playgrounds, and tennis courts were 2.0, 2.0, and 2.3 respectively on a 1-3 scale. Although rated as 'fair' the lack of accessibility to other active neighborhood park amenities in the ½ mile radius of this park means that residents rely on this park for their recreational needs.

Objective 1.2: Collaborate with the Department of Public Works to develop a Parks Maintenance Plan to address continual maintenance issues of park amenities.

Action 1.2.1: Collaborate with neighborhood organizations relative to each neighborhood park (ex. Historic Jackson Ward Association or Fan District Association) on the development of this plan.

Input from neighborhood park organizations is necessary in addressing maintenance issues within the neighborhood parks. Through engaging with neighborhood groups and organizations, the Department of Parks and Recreation can gain knowledge of how residents are currently interacting with these spaces in order to better understand each of the neighborhood parks and their surrounding communities.

Action 1.2.2: Identify potential funding sources for the expansion of park maintenance staff and resources relative to the needs of each neighborhood park.

With the expansion of park maintenance staff and resources to address the existing and future needs of neighborhood parks, the Department of Parks and Recreation must continually address potential funding opportunities to address these needs.

Goal 2: Diverse types of neighborhood park amenities

This goal focuses on expanding the types of amenities available at each of the 11 selected neighborhood parks to ensure that each park has at least two different types of amenities present. With some parks lacking a sufficient number of total amenities per capita, like Little John Park and Taylor's Hill Park, and others lacking various types of amenities in order to create a cohesive space, like Pollard Park, there are opportunities for improvement for both active and passive neighborhood parks. Through incorporating various amenity types in each park to include at least three different types of amenities, the Department of Parks and Recreation can work to increase the amount of amenities per capita for residents as well as create lively park spaces.

Objective 2.1: Increase the types of neighborhood park amenities available to residents

Action 2.1.1: Add an additional type of passive park amenities to Little John Park and Taylor's Hill Park

These parks only have two types of existing amenities available. The lack of overall types of amenities available paired with the low-quality and quantity of existing amenities means that not only is these parks are lacking in its existing amenities but also under-utilizing their park spaces entirely.

Action 2.1.2: Expand the types of passive park amenities available at Pollard Park to include two more types of passive amenities

Currently, the only type of amenity present at Pollard Park is 4 trash cans which is an underutilization of this park space. Additionally, the lack of any other type of amenity at this park means that this space is not adequately serving the residents in the surrounding area nor is it creating a lively or attractive park space. By adding benches along with another type of passive amenities (tables, playground/picnic shelters, etc) to Pollard Park it would help diversify the types of amenities present and allow for residents to enjoy this space.

Objective 2.2: Future planning of park amenities offered throughout the City of Richmond, Virginia

Action 2.2.1: Collaborate with diverse citizen groups, stakeholders, and other prominent figures in identifying the needs of the surrounding community of the neighborhood parks

In accordance with establishing equity within the neighborhood parks, engagement with diverse stakeholders is essential in all future planning of these neighborhood parks to ensure that all voices and perspectives are heard and represented in the planning process.

Action 2.2.2: Establish in the forthcoming Parks Master Plan that all future neighborhood parks offer at least 3 different types of amenities within their recreation type (passive or active) based on the community's needs

To address future issues of diverse park amenities, ensuring that all future neighborhood parks offer at least 3 different types of park amenities within their recreation type is essential to create inclusive spaces for all residents.

Goal 3: Equitable access to neighborhood park amenities

This goal focuses on improving the accessibility to neighborhood park amenities for all residents throughout the City of Richmond, Virginia. Through assessing the quality of the remaining neighborhood parks as well as addressing disparities in other types of parks, the Department of Parks and Recreation can work to further identify spatial disparities throughout the city. Additionally, through focusing on increasing the number of park amenities per capita, the Department of Parks and Recreation can work to reduce the disparities in the quality and quantity of neighborhood park amenities throughout the City of Richmond, Virginia.

Objective 3.1: Assess the quality of remaining parks throughout the City of Richmond, Virginia.

Action 3.1.1: Use the 'Park Amenity Quality Rubric' to evaluate the remaining neighborhood parks throughout the City of Richmond, Virginia.

This plan only focuses on 11 neighborhood parks throughout the City of Richmond. Through recreating this methodology, the remaining neighborhood park amenities can be analyzed to address existing disparities in these areas and identify fully which residents are lacking access to neighborhood parks throughout the City of Richmond.

Action 3.1.2: Adapt the 'Park Amenity Quality Rubric' to address and evaluate the amenities of other types of parks (regional, community, pocket, etc.)

This plan only focuses on analyzing amenities relative to 11 selected neighborhood parks in the City of Richmond, Virginia. This methodology should be adapted to evaluate the quality and quantity of park amenities located in other park types throughout the City of Richmond.

Objective 3.2: Increase the total amount of neighborhood park amenities per capita

Action 3.2.1: Increase the number of passive amenities for residents living within ½ mile of Little John Park and Pollard Park in Northside.

Currently, the number of amenities per capita for Little John Park and Pollard Park, both located in Northside, are 0.44 and 0.31 respectively. Not only did these parks have some of the lowest number of quality amenities per capita but Pollard Park scored the lowest among all of the passive neighborhood parks.

Action 3.2.2: Increase the number of active amenities for residents living within ½ mile of Battery Park in Northside.

Corresponding to action 3.2.1, Battery Park, also located in Northside had a low number of quality amenities per capita at 2.30, the lowest amongst the active neighborhood parks. These concentrations of disparities along with other neighborhood parks in Northside create a significant deficit in the access to quality neighborhood park amenities for residents in this area.

Battery Park, 2022
Photo Credit: Molly Mallow

As the City of Richmond Department of Parks and Recreation begins work on applying these recommendations, it is essential to categorize these actions based on priority level and potential project length. As shown below, the recommended actions outlined in this plan are separated into three length categories: short (1-3 years), medium (4-6 years), and long (6-10 years).

Additionally, these projects were categorized by priority level ranging from low to high in order to provide guidance on the prioritization of each action.

Although each project is important in its own rite, projects that directly address increasing and improving park amenities are prioritized the most as to improve the existing quality of park amenities that are broken or dilapidated. This implementation schedule also provides potential partners and facilitators for each of the actions listed in this plan in order to provide additonal guidance on the completion of these actions.

		Short	Medium	Long	Potential Partners	Priority Level
Goal 1: High-quality neighborhood park amenities	**Objective 1.1: Address existing concerns regarding dilapidated or broken amenities in neighborhood parks**					
	Action 1.1.1: Repair all broken or dilapidated benches, tennis courts, playgrounds, and basketball courts in Carter Jones Park	X			Department of Parks and Recreation, Department of Public Works	High
	Action 1.1.2: Update and/or repair all exercise equipment in Canoe Run Park and Oakwood Park	X			Department of Parks and Recreation, Department of Public Works	High
	Action 1.1.3: Repair all broken or dilapidated basketball courts, playgrounds, and tennis courts in Battery Park	X			Department of Parks and Recreation, Department of Public Works	High
	Objective 1.2: Collaborate with the Department of Public Works to develop a Parks Maintenance Plan to address continual maintenance issues of park amenities					
	Action 1.2.1: Collaborate with neighborhood organizations relative to each neighborhood park (ex. Historic Jackson Ward Association or Fan District Association) on the development of this plan			X	Department of Parks and Recreation, Historic Jackson Ward Association, Fan District Association, other neighborhood organizations	Medium
	Action 1.2.2: Identify potential funding sources for the expansion of park maintenance staff and resources relative to the needs of each neighborhood park		X		Department of Parks and Recreation, Department of Public Works, City Council	Low

		Short	Medium	Long	Potential Partners	Priority Level
Goal 2: Diverse types of neighborhood park amenities	**Objective 2.1: Increase the types of neighborhood park amenities available to residents**					
	Action 2.1.1: Add an additional type of passive park amenities to Little John Park and Taylor's Hill Park	X			Department of Parks and Recreation, Department of Public Works	High
	Action 2.1.2: Expand the types of passive park amenities available at Pollard Park to include two more types of passive amenities	X			Department of Parks and Recreation, Department of Public Works	High
	Objective 2.2: Future planning of diverse park amenities offered throughout the City of Richmond, Virginia					
	Action 2.2.1: Collaborate with diverse citizen groups, stakeholders, and other prominent figures in identifying the needs of the surrounding community of the neighborhood parks			X	Department of Parks and Recreation, neighborhood organizations, community members	Medium
	Action 2.2.2: Establish in the forthcoming Parks Master Plan that all future neighborhood parks offer at least 3 different types of amenities within their recreation type (passive or active) based on the community's needs			X	Department of Parks and Recreation, Department of Public Works	Medium

		Short	Medium	Long	Potential Partners	Priority Level
Goal 3: Equitable access to neighborhood park amenities	**Objective 3.1: Assess the quality of remaining parks throughout the City of Richmond**					
	Action 3.1.1: Use the 'Park Amenity Quality Rubric' to evaluate remaining neighborhood parks throughout the City of Richmond, Virginia.		X		Department of Parks and Recreation	Medium
	Action 3.1.2: Adapt the 'Park Amenity Quality Rubric' to address and evaluate the amenities of other types of parks (regional, community, pocket, etc.)		X		Department of Parks and Recreation	Medium
	Objective 3.2: Increase the total amount of neighborhood park amenities per capita					
	Action 3.2.1: Increase the number of passive amenities for residents living within ½ mile of Little John Park and Pollard Park in Northside.			X	Department of Parks and Recreation, Department of Public Works	Medium
	Action 3.2.2: Increase the number of active amenities for residents living within ½ mile of Battery Park in Northside			X	Department of Parks and Recreation, Department of Public Works	Medium

Finally, below are additional potential funding sources for the Department of Parks and Recreation to explore in order to fund these actions. With the Department of Parks and Recreation's forthcoming Master Plan and upcoming new fiscal year on July 1, 2022, it is imperative that funding for these recommendations is allotted to address these existing disparities.

Potential Funding Sources		
Funding Program	**Program Facilitator**	**Program Description**
Outdoor Recreation Legacy Partnership Program	National Park Service	Funding for programs in urban environments with populations greater than 50,000 to reconnect disadvantaged neighborhoods to recreation opportunities and spaces
Get Outdoors	Virginia Outdoors Foundation	Funding for projects focusing on increasing the equitable access to parks and green spaces
Meet Me at the Park Play Spaces	National Recreation and Park Association	Funding for playground projects in order to increase access to play spaces
AARP Community Challenge	AARP	Funding for parks and green spaces to ensure that they have accessible park amenities
Land and Water Conservation Fund	Virginia Department of Conservation and Recreation	Supports local governments and organizations with funding for the acquisition and/or development or parks and open spaces

Conclusion

This spatial disparities analysis of the City of Richmond, Virginia's neighborhood park amenities demonstrates the existing disparities in the quality, quantity, and types of park amenities available in 11 neighborhood parks throughout the city. This plan provides the City of Richmond with a recommendations that are ranked by their priority level in order to address these existing disparities and ensure that all residents have adequate access to high-quality neighborhood park amenities. Although this plan only focuses on a small sample-size of the City of Richmond's park catalog, the disparities existing throughout these neighborhood parks represent the potential equity issues existing throughout the entire park system. Additionally, this plan's outlined assessment tools and methodology can be replicated by the City of Richmond in order to assess the remaining neighborhood parks as well as adapt these tools to assess other types of parks.

As the City of Richmond continues to change and expand, focusing on providing high-quality parks and amenities is essential in order to foster safe and reliable recreational opportunities and green spaces for residents. With the forthcoming Parks Master Plan, the first in several decades, this plan aims to provide the Department of Parks and Recreation with a snapshot of its existing neighborhood park amenities moving forward in the planning process. Through focusing on addressing these existing disparities among the 11 neighborhood parks studied, the Department of Parks and Recreation can improve the overall quality of its neighborhood parks and ensure that all residents have access to high-quality park amenities that meet the needs of their community. Similarly, through acknowledging and addressing the inequities that exist in the park system, the Department of Parks and Recreation can begin to regain the trust of residents throughout the city that have historically lacked access to these resources. Through doing so, the Department of Parks and Recreation can work to create a more equitable, accessible, and inclusive park system for all residents throughout the City of Richmond, Virginia.

Little John Park, 2022
Photo Credit: Molly Mallow

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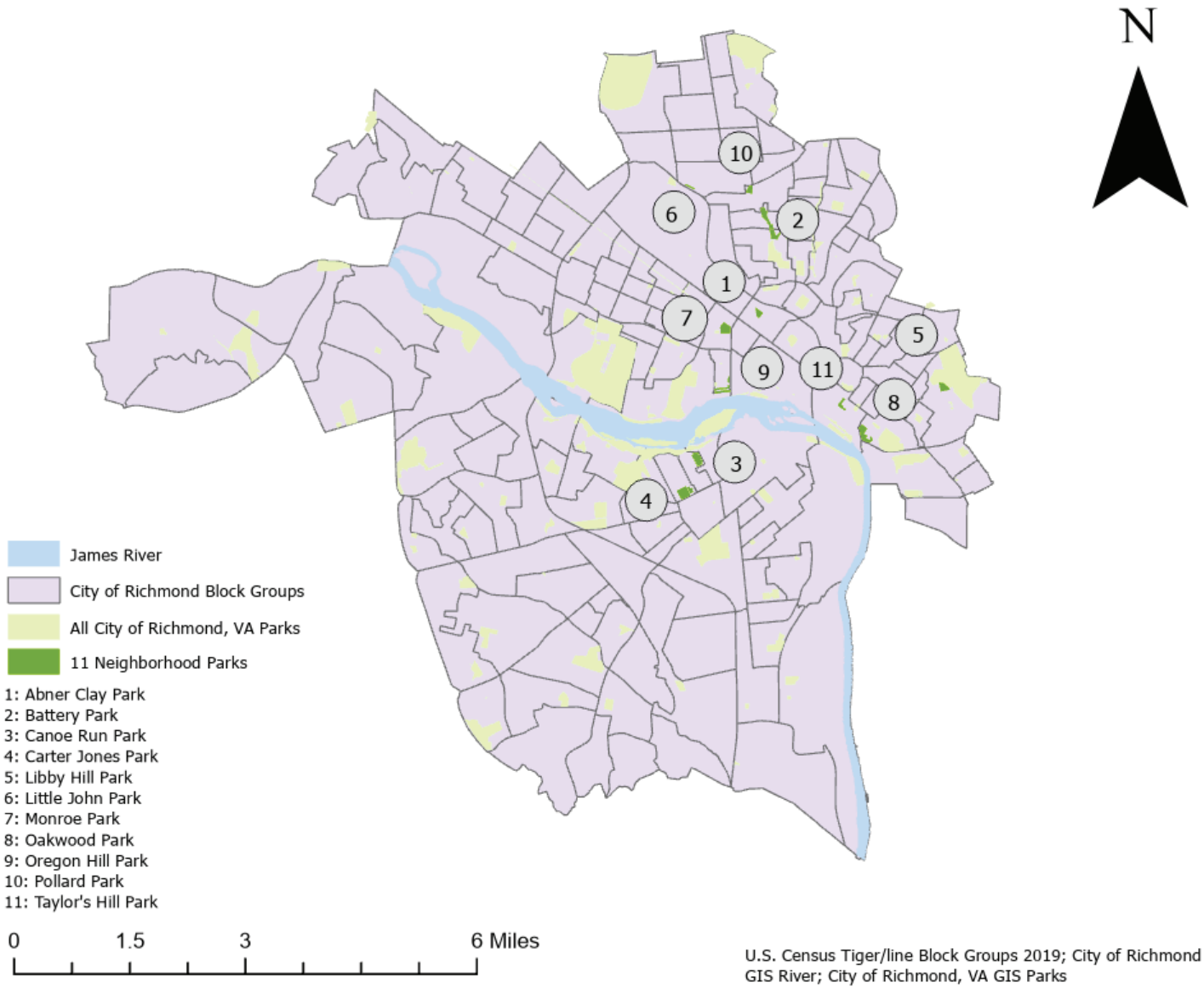
Appendix A

City of Richmond, Virginia Parks

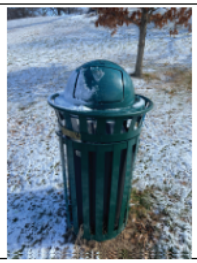


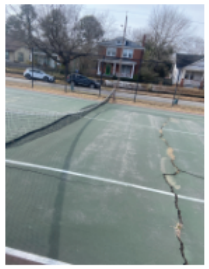
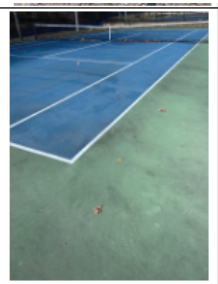
U.S. Census Tiger/line Block Groups 2019; City of Richmond GIS River; City of Richmond, VA GIS Parks

Appendix B

Neighborhood Park Index															
Park Name	Address	Acerage	Recreation Type	Viewshed	Basketball Courts	Tennis Courts	Benches	Trash Cans	Playground	Chair (stand-alone)	Playground or Picnic Shelter	Picnic Tables	Athletic Field	Exercise Equipment	Total
Abner Clay Park	200 West Clay Street	4.6	Active	No	1	0	15	4	4	0	1	4	1	0	**30**
Battery Park	2803 Dupont Circle	11.8	Active	No	2	9	6	14	4	0	5	4	0	0	**44**
Canoe Run Park	600 W 22nd St	4.5	Active	No	0	0	8	4	1	0	3	2	0	10	**28**
Carter Jones Park	2813 Bainbridge Street	11.3	Active	No	1	2	22	8	2	0	6	9	2	0	**52**
Libby Hill Park	2801 East Franklin Street	7.0	Passive	Yes	0	0	19	10	0	0	0	2	0	0	**31**
Little John Park	1401 Little John Road	1.3	Passive	No	0	0	2	2	0	0	0	0	0	0	**4**
Monroe Park	620 West Main Street	9.3	Passive	No	0	0	10	17	0	66	1	21	0	0	**115**
Oakwood Park	1500 Melton Avenue	6.0	Active	No	0	0	4	2	1	0	3	2	1	15	**28**
Oregon Hill Park	714 South Pine Street	5.0	Passive	Yes	0	0	6	2	0	0	1	2	0	0	**11**
Pollard Park	3000 West Ladies Mile Road	4.2	Passive	No	0	0	0	4	0	0	0	0	0	0	**4**
Taylor's Hill Park	2100 East Franklin Street	4.3	Passive	Yes	0	0	3	2	0	0	0	0	0	0	**5**

Appendix C

Park Amenity Quality Rubric						
Amenity Type	**1- Poor Condition**	**Example 1**	**2- Fair Condition**	**Example 2**	**3- Good Condition**	**Example 3**
Benches/ Chairs	Materials of benches have significant wear, structural or conditions issues may exist, some elements of the benches do not work.		Fair condition, materials of bench have some wear but no structural or safety issues. Everything is in working order.		Good condition, bench has minimal wear and no structural or safety issues.	
Playgrounds	Poor condition, requires significant maintenance or replacement of playground or fall materials. Possible safety issues present.		Fair condition, slight cracking or detirioration of materials or fall materials but no structural or safety issues present.		Good condition, all materials are sound and show no signs of detirioration in structure or fall materials.	
Tables	Poor condition, materials have significant wear and structural or safety issues may be present. Some elements may be not in working order.		Fair condition, materials have some wear but no structural or safety issues are present. All elements are in working order.		Good condition, materials have minimal wear and all elements are in working order. No structural or safety issues present.	
Trash Cans	Poor condition, signficant wear or excess trash inside and outside of can.		Fair condition, some wear present but there is no excess trash outside of the can.		Good condition, minimal wear present and there is no excess trash inside or outside of can.	
Exercise Equipment	Poor condition, materials have significant wear and safety or structural issues may exist. Some elements are not working.		Fair condition, materials have some wear but no structural or safety issues are present.		Good condition, materials have minimal wear and no structural or safety issues are present. All elements are working.	

Tennis Courts	Poor condition, significant cracks in surface, excessive weeds, significant wear of materials. Structure or safety issues may be present and significant maintenance may be necessary. Significant irrigation issues present.		Fair condition, some drainage issues, weeds present, or material deterioration. No structural or safety issues but some maintenance is necessary. Minor irrigation issues.		Good condition, no cracks in surface and minimal wear of materials. Courts have clear stripping and net has minimal wear.	
Park or Playground Shelter	Poor condition, materials have significant wear and structural/safety issues and leaks may be present. Some elements are not in working order.		Fair condition, materials have some wear but no structural/safety issues or leaks present. All elements are in working order.		Good condition, materials have minimal wear and no structure or safety issues are present.	
Basketball courts	Poor condition, significant cracks in surface and wear of materials. Holes present that impact playing and have indistinguishable lines or no stripping. No rims and net or are in poor condition.		Fair condition, some cracks that do impact playing. Full courts have stripping and lines. Rims and nets are present but in worn condition.		Good condition, materials have no cracks and minimal wear. Full courts have clear stripping and lines. Rims and nets are in good condition.	
Athletic Fields	Poor condition, significant areas are bare and there are significant drainage issues, bumps, unwanted vegetation, and holes present		Fair condition, grass has some thin spots in high use areas and there are some drainage issues, bumps, unwanted vegetation, and holes present. Minor irrigation issues.		Good condition, thick grass with minimal thin spots, no drainage issues, bumps, holes, and free of unwanted vegetation.	

Appendix D

Neighborhood Park Amenity Assessment					
Park Name		Address		Date of Assessment	
Benches	Are benches present at this park?	Yes		No	
	How many benches are present?				
	Is graffiti/drawings present on the amenity?	Yes		No	
	On a scale from 1-3, what is the quality of the benches?	1- Poor condition	2-Fair condition	3-Good condition	N/A
Playgrounds	Are playgrounds present at this park?	Yes		No	
	How many benches are present?				
	Is graffiti/drawings present on the amenity?	Yes		No	
	On a scale from 1-3, what is the quality of the playground?	1- Poor condition	2-Fair condition	3-Good condition	N/A
Tables	Are tables present at this park?	Yes		No	
	How many benches are present?				
	Is graffiti/drawings present on the amenity?	Yes		No	
	On a scale from 1-3, what is the quality of the tables?	1- Poor condition	2-Fair condition	3-Good condition	N/A

Appendix D

	Is exercise equipment present at this park?	Yes	No		
	How many benches are present?				
	Is graffiti/drawings present on the amenity?	Yes	No		
Exercise Equipment	On a scale from 1-3, what is the quality of the exercise equipment?	1- Poor condition	2-Fair condition	3-Good condition	N/A
	Are tennis courts present at this park?	Yes	No		
	How many benches are present?				
	Is graffiti/drawings present on the amenity?	Yes	No		
Tennis Courts	On a scale from 1-3, what is the quality of the tennis court?	1- Poor condition	2-Fair condition	3-Good condition	N/A
	Are basketball courts present at this park?	Yes	No		
	How many benches are present?				
	Is graffiti/drawings present on the amenity?	Yes	No		
Basketball Courts	On a scale from 1-3, what is the quality of the basketball courts?	1- Poor condition	2-Fair condition	3-Good condition	N/A

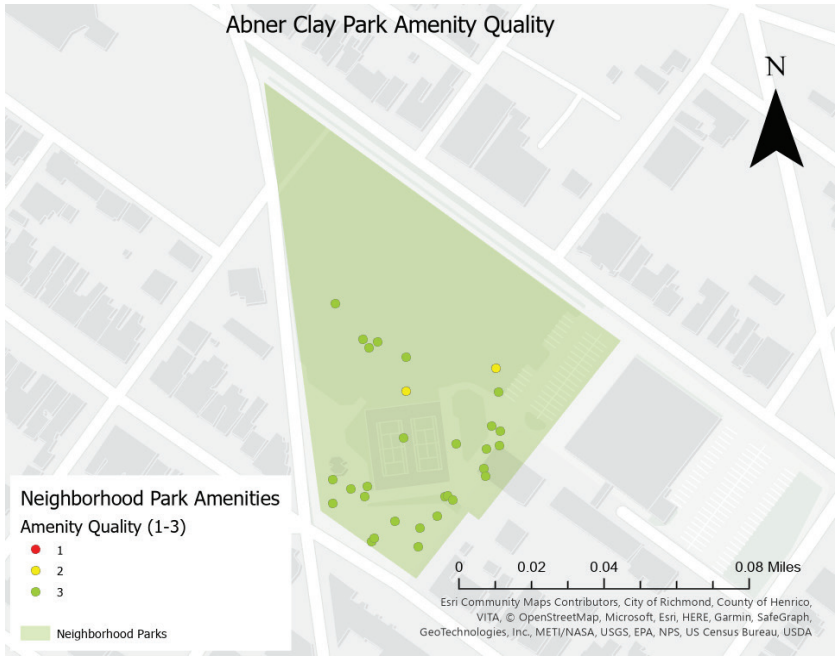
Appendix D

	Are athletic fields courts present at this park?	Yes	No		
	How many basketball courts are present?				
Athletic Fields	On a scale from 1-3, what is the quality of the athletic fields?	1- Poor condition	2-Fair condition	3-Good condition	N/A
	Are trash cans present at this park?	Yes	No		
	How many benches are present?				
	Is graffiti/drawings present on the amenity?	Yes	No		
Trash cans	On a scale from 1-3, what is the quality of the trash cans?	1- Poor condition	2-Fair condition	3-Good condition	N/A
	Are playground/picnic shelters present at this park?	Yes	No		
	How many benches are present?				
	Is graffiti/drawings present on the amenity?	Yes	No		
Playground/Picnic Shelter	On a scale from 1-3, what is the quality of the playground/picnic shelter?	1- Poor condition	2-Fair condition	3-Good condition	N/A

Appendix E

Park Observation Data														
					Park Amenities Used (Y/N/N/AV)									
Park Name	**Date**	**Start Time**	**End Time**	**Number of People observed**	**Benches or Chairs**	**Playgrounds**	**Tables**	**Trash Cans**	**Exercise Equipment**	**Basketball Courts**	**Tennis Courts**	**Park or Playground Shelter**	**Athletic Field**	**Notes**
Abner Clay	11/28	11:03:00 AM	12:34:00 PM	15	Y	Y	Y	Y	N/AV	Y	N/AV	Y	N	Most people sat on benches watching their children at the playground.
Battery	12/4	11:12:00 AM	12:42:00 PM	33	Y	Y	N	Y	N/AV	Y	Y	N	N/AV	A lot of people playing tennis, walking dogs, or playing on playground.
Canoe Run	12/12	12:02:00 PM	1:32:00 PM	6	Y	Y	N	N	N	N/AV	N/AV	N	N/AV	Only adults and children using/watching the playground. Nobody used exercise equipment but there were people running around nearby.
Carter Jones	12/12	2:06:00 PM	3:36:00 PM	12	N	Y	Y	Y	N/AV	N	N	Y	N	Mostly people walking around, skating, or using the playground. Did notice that the restrooms were locked and there was a port-o-potty in the park instead.
Libby Hill	1/8	12:30:00 PM	2:03:00 PM	27	Y	N/AV	Y	Y	N/AV	N/AV	N/AV	N/AV	N/AV	A lot of activity. People usually walk through the park or walk dogs. Some people were running up the stairs.
Little John	1/9	11:26:00 AM	12:56:00 PM	0	N	N/AV	N/AV	N	N/AV	N/AV	N/AV	N/AV	N/AV	Nobody was at the park during my observation time.
Monroe	11/28	12:58:00 PM	1:28:00 PM	50+	Y	N/AV	Y	Y	N/AV	N/AV	N/AV	N/AV	N/AV	A lot of movement. Most people are walking through but the tables and chairs near the fountain are full of people socializing, eating, or reading.
Oakwood	1/15	12:45:00 PM	2:15:00 PM	4	Y	Y	N	N	N	N/AV	N/AV	Y	N	Not much movement. A mom and kids were at the playground and one person walked their dog through the park.
Oregon Hill	11/28	1:50:00 PM	3:20:00 PM	0	N	N/AV	N	N	N/AV	N/AV	N/AV	N	N/AV	Nobody visited the park during this time.
Pollard	12/4	1:12:00 PM	2:45:00 PM	1	N/AV	N/AV	N/AV	N	N/AV	N/AV	N/AV	N/AV	N/AV	Not much movement. Only person I saw was someone walking their dog. No places to sit in this park.
Taylor's Hill	1/8	2:25 PM	3:55 PM	2	N	N/AV	N/AV	Y	N/AV	N/AV	N/AV	N/AV	N/AV	Although there's a bench at the lookout, people opted to sit on the ground even in the cold weather. Not much movement.

Appendix F


Abner Clay Park Amenity Quality
N
Neighborhood Park Amenities
Amenity Quality (1-3)
1
2
3
Neighborhood Parks
0
0.02
0.04
0.08 Miles
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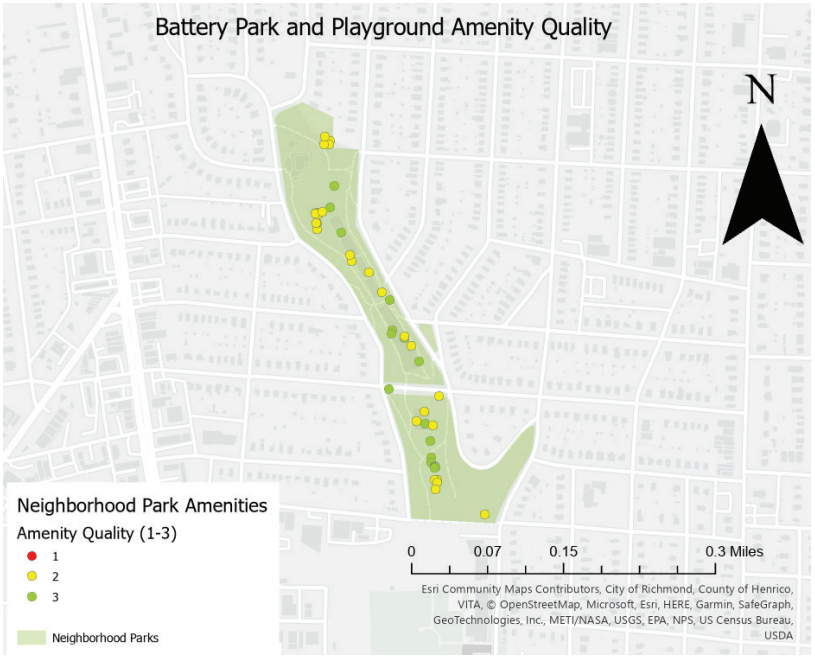
Battery Park and Playground Amenity Quality
N
Neighborhood Park Amenities
Amenity Quality (1-3)
1
2
3
Neighborhood Parks
0
0.07
0.15
0.3 Miles
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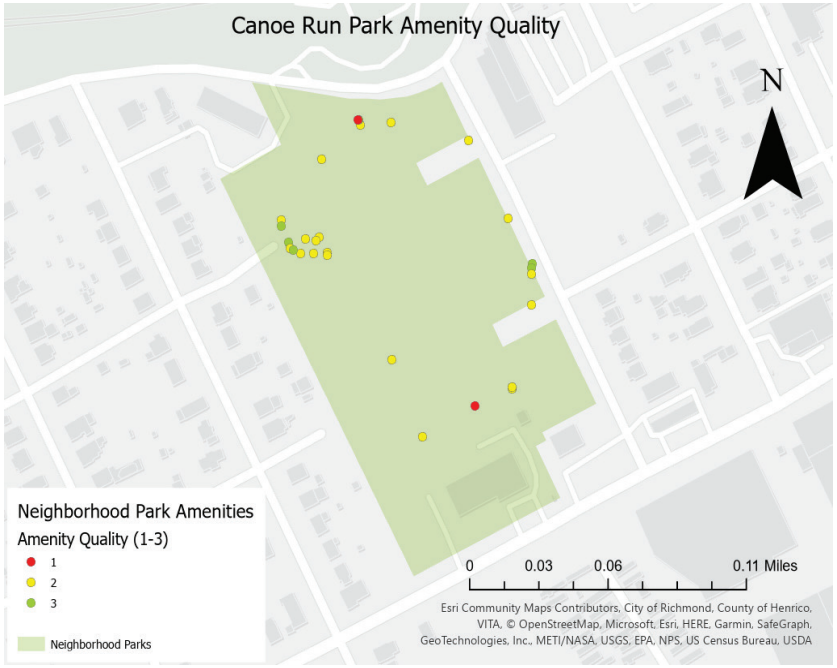
Canoe Run Park Amenity Quality
N
Neighborhood Park Amenities
Amenity Quality (1-3)
1
2
3
Neighborhood Parks
0
0.03
0.06
0.11 Miles
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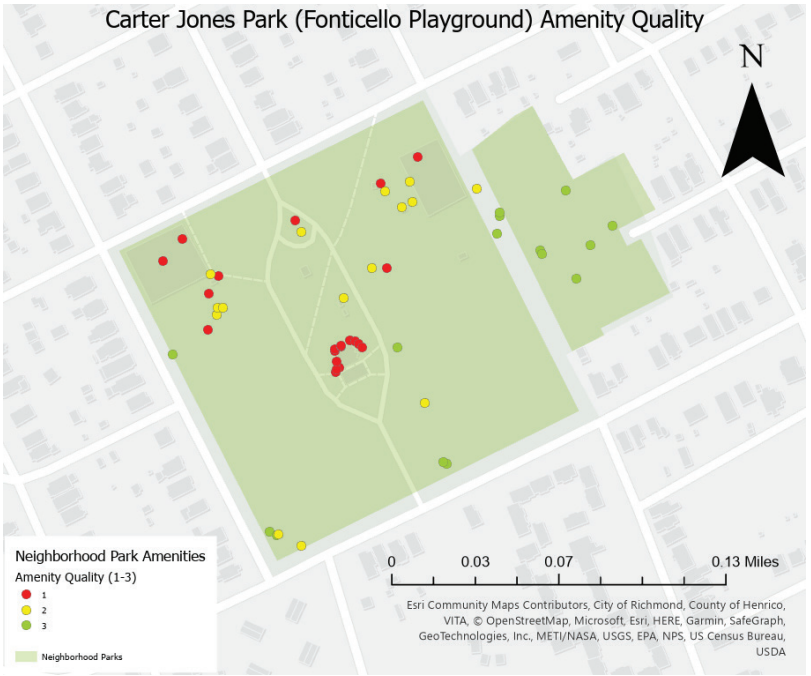
Carter Jones Park (Fonticello Playground) Amenity Quality
N
Neighborhood Park Amenities
Amenity Quality (1-3)
1
2
3
Neighborhood Parks
0
0.03
0.07
0.13 Miles
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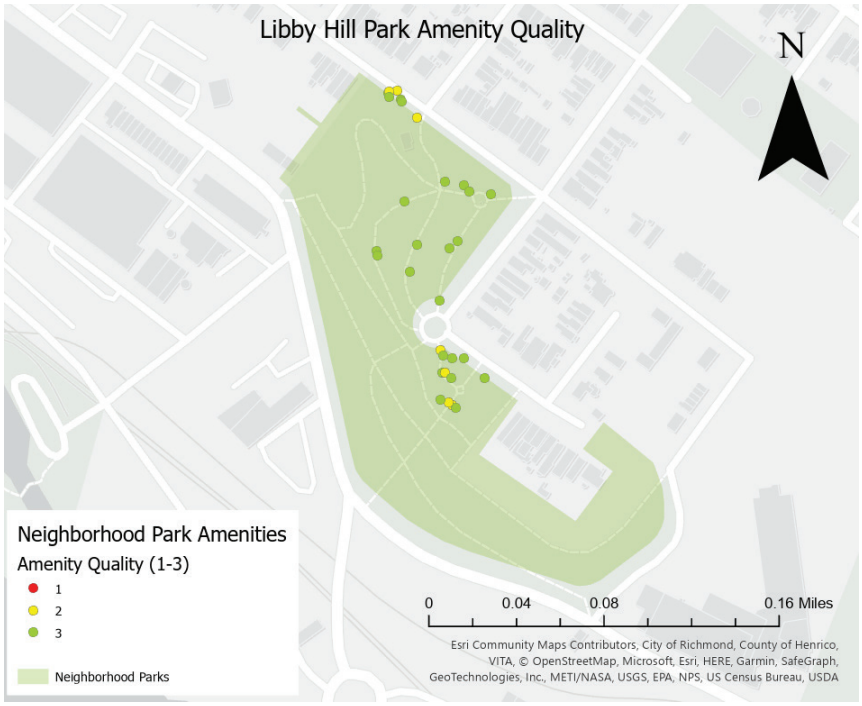
Appendix F


Libby Hill Park Amenity Quality
N
Neighborhood Park Amenities
Amenity Quality (1-3)
1
2
3
Neighborhood Parks
0
0.04
0.08
0.16 Miles
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Little John Park Amenity Quality
N
Neighborhood Park Amenities
Amenity Quality (1-3)
1
2
3
Neighborhood Parks
0
0.01
0.03
0.06 Miles
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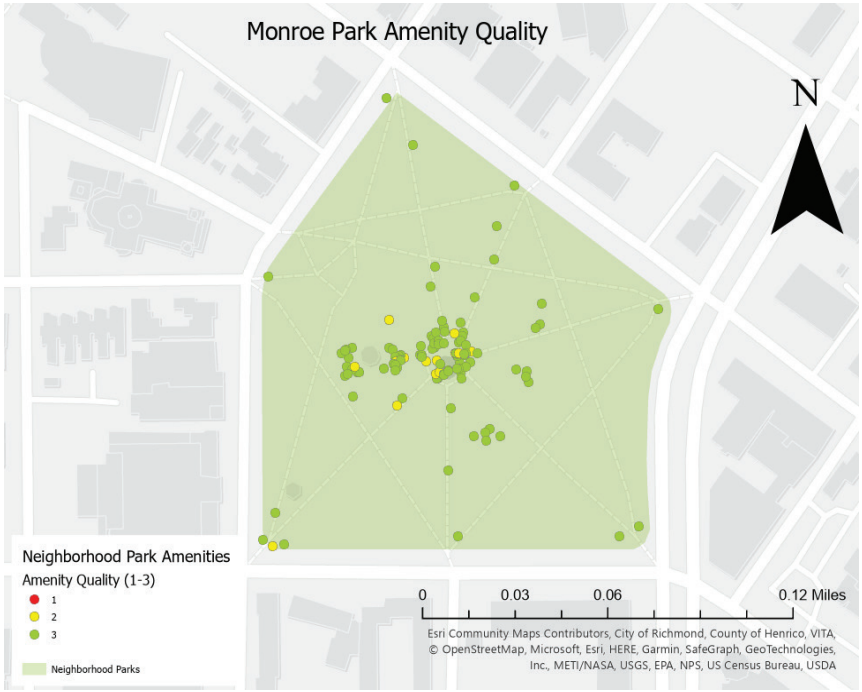
Monroe Park Amenity Quality
N
Neighborhood Park Amenities
Amenity Quality (1-3)
1
2
3
Neighborhood Parks
0
0.03
0.06
0.12 Miles
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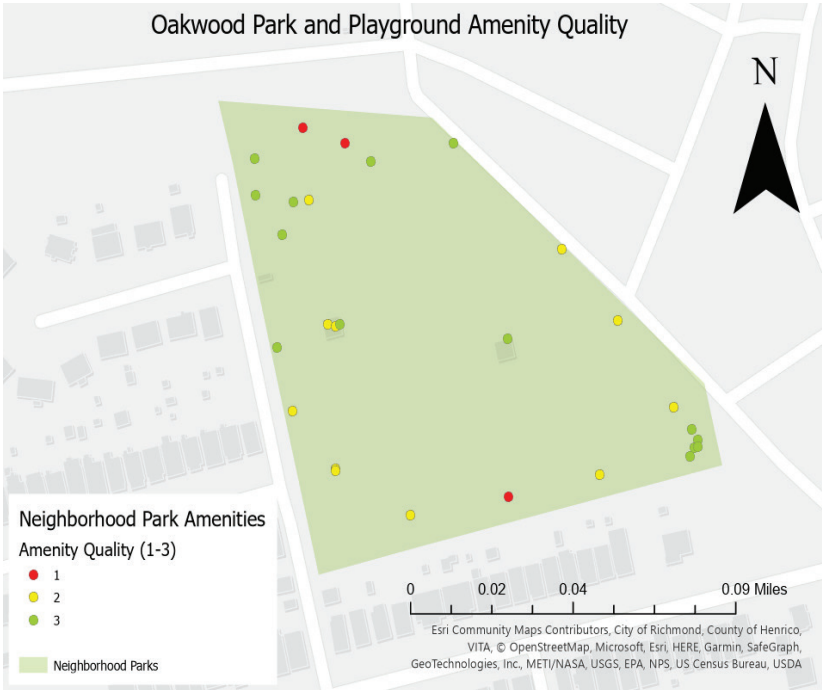
Oakwood Park and Playground Amenity Quality
N
Neighborhood Park Amenities
Amenity Quality (1-3)
1
2
3
Neighborhood Parks
0
0.02
0.04
0.09 Miles
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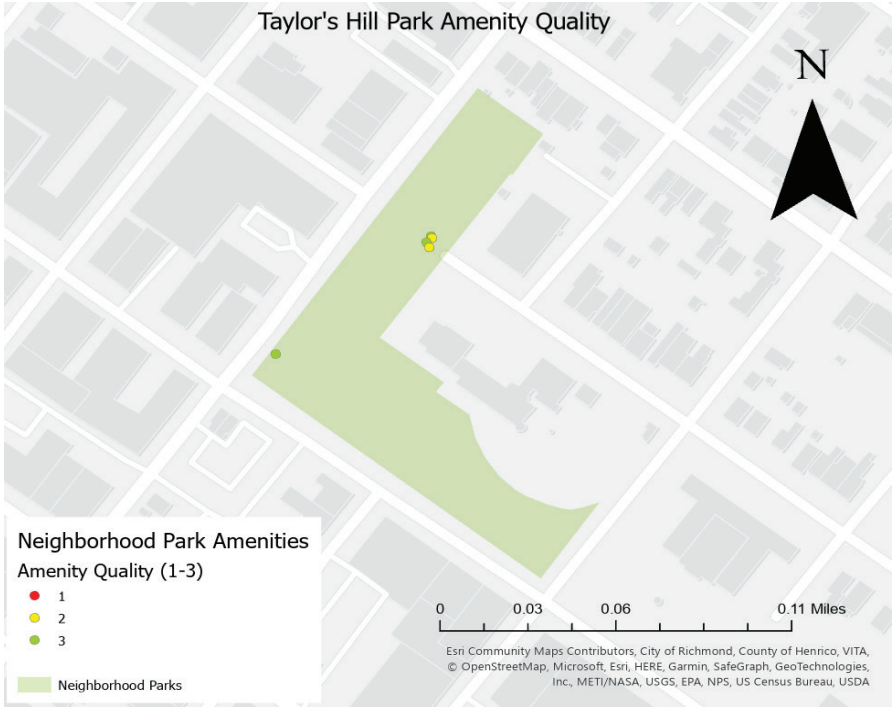

Link to ArcMap Online data for all assessed amenities.

https://arcg.is/P4Sr5