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Mapping Park Maintenance Disparities Across Johannesburg's Socio-Economic Landscape: A Pilot Assessment Study

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1 ABSTRACT

Public parks provide essential recreational spaces in urban areas; however, their conditions and utility vary significantly across neighborhoods. This pilot study examined park maintenance disparities in Johannesburg by developing a classification system and documenting conditions of 28 parks across Johannesburg's seven regions using four criteria: infrastructure, amenities, maintenance, and safety. This assessment enabled the selection of three parks across socio-economically distinct areas in the city. In the analysis, field observations were combined with satellite imagery from Google Earth Pro. Three independent assessors achieved strong agreement in their evaluations, validating our assessment approach. The results revealed striking unevenness in the conditions and utility among the focused parks. While James & Ethel Gray Park is in an affluent suburb spanning 467,819m² with excellent facilities and active community involvement, End Street North Park in the Central Business District (CBD) covers only 14,366m² and maintains basic cleanliness but lacks comprehensive recreational amenities. Lastly, Doris Park, located in a mixed-income neighborhood, occupies just 12,636m², 37 times smaller than the James & Ethel Gray Park, with deteriorated and poorly maintained sporting facilities. These patterns reflect persistent spatial injustice rooted in apartheid-era planning. The findings demonstrate that neighborhood wealth strongly correlates with parks' conditions and utility, highlighting the urgent need for equity-focused urban planning in South African cities for enhance public parks functionality.

Keywords: Urban Inequality, Park Maintenance, Spatial Analysis, Johannesburg, Satellite Imagery.

2 INTRODUCTION

Recreational centres are a necessity in human settlements. Aside from serving as points for social recreation and integration, especially among youths, they are points for communal social services, exercise, and relaxation (Alison et al., 2016; Dayle, 2022; Jeeva & Gumbo, 2023; Khanyile & Fatti, 2022). Consequently, governments across contexts have strived to site, furnish, and maintain public parks in strategic locations across urban settings, as they provide spaces for recreation in dense urban landscapes (Jeeva & Oosthuizen, 2023). While significant investment has been demonstrated in the establishment and maintenance of public parks in developing contexts, such as South Africa, recent observations of the conditions and utility of public parks in the country, particularly in the City of Johannesburg, showed unevenness, indicating the possible impact of demographic and socio-economic factors on the conditions and utility of parks in the city (Hofer et al., 2022; Jeeva & Oosthuizen, 2023). To ascertain the possibility of these connections, this paper explores the conditions of parks across socio-economically distinct communities, documenting differences, mapping patterns, and developing a classification system for public parks in the City of Johannesburg.

To effectively document and classify the over 2000 public parks in the city (Khanyile & Fatti, 2022), an initial pilot study focusing on a few parks to develop and validate an assessment tool is required. This paper serves this purpose by:

(1) Developing and validating a classification system for assessing park maintenance conditions and utility in developing urban contexts.

(2) Documenting maintenance disparities across three parks representing distinct socio-economic communities in Johannesburg.

(3) Conduct a comparative spatial analysis of the parks from the satellite and photograph imagery.

Over the years, studies establishing a connection between the economic dimension and spatial features in South Africa have been scanty (Alison et al., 2016). Despite growing recognition of urban park inequality in South Africa (Venter et al., 2020; Khanyile & Fatti, 2022), systematic documentation of park maintenance

disparities remains limited. Existing studies examine park access (Khanyile & Fatti, 2022) or usage patterns (Jeeva & Gumbo, 2023) but do not systematically assess maintenance conditions across socio-economic gradients. Furthermore, no validated classification system exists for comparing park quality in South African contexts. This pilot study addresses these gaps by developing an assessment tool specifically suited to Johannesburg's conditions while documenting the extent and spatial patterns of maintenance disparities across the city's diverse neighborhoods.

3 LITERATURE REVIEW

3.1 Theoretical Framework: Environmental Justice and Spatial Justice

This paper leverages a combination of Environmental Justice (EJ) and Spatial Justice, two complementary theoretical traditions for developing an assessment framework. The framework serves a dual purpose of guiding the selection of assessment indicators and the interpretation of observed disparities in this paper.

As articulated by Schlosberg (2007), Environmental Justice, a theory commonly used for analysing urban green infrastructure (Venter et al., 2020; Hofer et al., 2022), asserts that equity in the distribution of environmental amenities, such as public parks, across social groups, despite racial, income, or related socio-demographic differences, is important. Consequently, the theory posited that three indicators comprising; (i) distributive justice, concerned with the equitable allocation of park space and resources (corresponding to the infrastructure and amenities indicators); (ii) procedural justice, relating to community participation in park governance (reflected in community engagement observations); and (iii) recognition justice, which demands acknowledgment of the needs of marginalized communities (relevant to the safety and maintenance indicators in lower-income areas) are relevant to measuring park quality and untitlity.

This tripartite EJ framework, synthesized with Buchholz's (2011) concept of Spatial Justice, which foregrounds the role of geographic space in reproducing social inequalities, provides a coherent theoretical rationale for the four assessment indicators adopted in this study.

3.2 Assessment Criteria: Theoretical and Empirical Justification

Post-apartheid South Africa has continued to struggle with balancing the entrenched socio-economic inequalities among its citizens (Shackleton & Gwedla, 2021). This inequality, prominent in spatial planning, is evident in the size and conditions of public parks around the country (Dayle, 2022; Jeeva & Oosthuizen, 2023). Particularly in Johannesburg, township redevelopment has been on the increase, an attempt to overhaul the status of townships (Alison et al., 2016), buttressed by Hofer et al. (2022) as one of the approaches to addressing past inequality while promoting environmental justice in the city.

To rate the condition of public parks, there is a need for measurement indicators. Premised on literature, such as Dayle (2022), ascertaining a park's condition is based on three criteria of maintenance, management, and safety. Clearly, these indicators are critical for parks to function effectively and attract park users. However, other important factors, such as the presence of sports facilities and support infrastructure, are not captured by Dayle, calling for the exploration of additional literature with more encompassing criteria. Jeeva and Gumbo (2023), in their study that examined the quality of parks and their utilization in three different suburbs of Potchefstroom, South Africa, adopted five criteria as recommended by the Urban Land Institute. These were: park's condition, access to users, park utility, context relevance, and park's flexibility. Primarily, these criteria focus more on users' evaluation of parks than on the physical components of the parks.

This paper streamlined the park assessment criteria to four: infrastructure, amenities, maintenance, and safety, representing a synthesis of Dayle (2022) and the Urban Land Institute criteria (Jeeva & Gumbo, 2023). Crucially, the selection of these four indicators is not merely pragmatic but theoretically justified: infrastructure and amenities correspond to the distributive dimension of EJ (what resources are materially present); maintenance operationalises the procedural dimension (the regularity and quality of state service delivery); and safety captures the recognition dimension (whether the park environment acknowledges the rights and needs of all potential users). This alignment between the EJ framework and the chosen assessment indicators provides the theoretical grounding that a purely empirical classification system would lack.

3.3 Indicator Weighting: Rationale and Limitations

A key methodological decision in any classification system is whether to apply equal or differential weights to assessment indicators. This study applies equal weighting across the four indicators, consistent with approaches adopted in comparable multi-criteria park assessment tools in the Global South (Badiu et al., 2016; Zuniga-Teran et al., 2020). The rationale for equal weighting rests on three grounds: first, in the absence of a validated South African benchmark for indicator prioritisation, differential weighting would introduce unverifiable assumptions; second, EJ theory does not privilege any single dimension of justice over others (Schlosberg, 2007); and third, the pilot nature of this study prioritises diagnostic breadth over precision weighting. Nevertheless, it is acknowledged that future iterations of this classification system, informed by community-level priority surveys and expert elicitation, may benefit from applying differential weights. For instance, safety might warrant higher weighting in high-crime urban contexts, while maintenance frequency may be paramount in tropical climates with rapid vegetation degradation. These refinements are identified as a direction for subsequent research.

4 METHODOLOGY

This paper adopts a comparative case study approach that combines observational assessment with quantitative satellite imagery and photographs. The observation covers physical inspection of the selected parks for condition assessment using four indicators of infrastructure, amenities, maintenance, and safety, as curated from the literature (Dayle, 2022; Jeeva & Gumbo, 2023). Infrastructure assessment focuses on the structure of the parks, such as the fencing, restrooms, etc. Amenities cover all recreational facilities available for people, maintenance explores the extent to which maintenance staff frequent the facility for repair, cleaning, and upgrading, while safety is on the protection provided for both people and facilities in the park. Satellite imagery and photographs are used to analyze the vegetation density differences, the surrounding neighbourhood, and infrastructure visibility.

4.1 Park Selection

In the selection of the parks, the researcher, in collaboration with two research assistants, visited four parks in each of the seven regions (A-G) in the city of Johannesburg. The parks' conditions were assessed using the four criteria mentioned above to group the parks into well-maintained (depicted in green), fairly maintained (orange), and vandalized (red) categories. From the assessment, three parks were purposively selected out of the 28 parks surveyed across 7 regions, with each from the three categories, to enable adequate coverage of the varied demographic and socio-economic factors that characterized the city. The parks selected for this study are shown in Table 1 and Figure 1.

S/N	Parks	Location	Demographic Features
1	James & Ethel Gray Park	Birdhaven, south of Melrose Arch	Affluent suburb, occupied by elites.
2	Doris Park	Yeoville, inner-city neighbourhood	Mixed nationalities and economic classes.
3	End Street North Park	Central Business District (CBD)	Residential/business area; exposed to informal recyclers and homeless persons.

Table 1: Selected Parks and their Demographics. Source: Researcher's compilation.

Figure 1: A Map of Johannesburg showing the three Parks adopted in this paper. Source: Captured by the Researcher using Google Earth Pro.

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4.2 Assessment Procedure and Inter-rater Reliability

In the assessment of these parks, the researcher and his two assistants assessed the parks independently but simultaneously. Each of the assessors scored the parks on the initial indicators using a 0–5 point scale.

Table 2 presents inter-rater reliability results for James & Ethel Gray Park as a representative example. Discrepancies within 1 point are considered as agreement, indicating a 100% agreement rate. Photographic documentation supported the resolution of discrepancies by providing objective evidence of park conditions. Similar agreement patterns were observed across all three parks. Using the criterion of 'within 1 point' as agreement on the 5-point scale, the three assessors achieved 100% agreement across all four indicators for all three parks, demonstrating strong consistency in the application of assessment criteria.

Indicator	Assessor 1	Assessor 2	Assessor 3	Agreement?
Infrastructure	5	5	4	Partial (2 of 3 agree)
Amenities	5	5	5	Complete (3 of 3 agree)
Maintenance	4	5	4	Partial (2 of 3 agree)
Safety	5	4	5	Partial (2 of 3 agree)

Table 2: Inter-rater Reliability Test Result. Source: Researcher's compilation.

To further assess the reliability of the classification system beyond observer agreement, the categories adopted in this study (well-maintained, fairly maintained, and vandalized) were compared against the Green Flag Award criteria, an internationally recognised benchmark for park quality standards (Keep Britain Tidy, 2023) and the Trust for Public Land's ParkScore framework (TPL, 2023). While these external benchmarks were developed in different national contexts, the overlap in their core dimensions (physical condition, amenity provision, safety, and maintenance regularity) with the four indicators used in this study provides a degree of external criterion validity. James & Ethel Gray Park's profile (extensive infrastructure, high amenity provision, regular maintenance, secure environment) aligns with Green Flag's 'excellent' category; End Street North Park corresponds to a 'satisfactory' rating; and Doris Park's profile reflects conditions associated with 'substandard' or failing assessments in both frameworks. This external alignment strengthens the construct validity of the classification system developed here, even as formal cross-national validation remains a limitation and a direction for future work.

4.3 Satellite Imagery Analysis

In addition, satellite images and photographs of the parks were also taken to further authenticate the assessments. To capture the aerial perspective of the parks, the study adopted Google Earth Pro, while the researchers used their mobile phones to take pictures of notable areas in the parks. High-resolution imagery of the parks was taken in November 2025 to assess the parks' boundary, vegetation, infrastructure visibility, neighborhood context, and encroachment and degradation indicators. The images were taken at an interval of a day to ensure consistency in vegetation and terrain appearance.

5 FINDINGS AND DISCUSSION

The findings of this paper comprise field observations, satellite images, and photographic assessments of the selected parks in the city of Johannesburg.

5.1 James & Ethel Gray Park

In this park, all assessors found that the park infrastructure was adequate, and the recreation amenities included facilities suitable for kids and adults. The park surroundings are also clean and well-fenced to safeguard both the property and the lives of the park users. Evidently, in Figure 2, the park is situated in a well-organized residential community with lush green vegetation. This finding shows that this park meets the four criteria (i.e., infrastructure, amenities, maintenance, and safety) adopted in the assessment. The researchers also noticed an indication of community partnership with municipal officials in the maintenance of the parks through the establishment of the James and Ethel Gray Park Foundation (https://jamesandethelgrayparkfoundation.org/), where people are encouraged to support the maintenance of the park with donations.

Figure 2: An Aerial view of James & Ethel Gray Park and its neighbourhood. Source: Captured by the Researcher using Google Earth Pro.

Figure 3: A Cross Section of the Scenery at the James & Ethel Gray Park.

The assessment of satellite imagery in Figure 2 showed that the park occupies an area of about 467,819m², making it one of the biggest parks in the city. This wide area enables the park to incorporate many recreational sports, such as golf, long tennis courts, etc. Furthermore, the image showed significant vegetation coverage, creating lushness not only in the parks, but also in the neighbourhood. Vegetation health assessment from satellite imagery showed vibrant green coloration across the park, indicating healthy, well-irrigated vegetation with tree canopy coverage exceeding 40% of the park area. In complementing these, images combined in Figure 3 showed available facilities for enhancing the comfort of the park users, such as car parking, clear boundaries, and without any indication of encroachment.

The combination of the researchers' assessment and satellite imagery evaluation positioned the James & Ethel Gray Park as a well-maintained park, serving park users effectively. Interpreted through the EJ framework, this park exemplifies the distributive justice dimension: it benefits from both municipal investment and private community capital (via the foundation), producing a compounding advantage for an already affluent area. This pattern aligns with Venter et al.'s (2020) 'Green Apartheid' thesis, whereby historical inequalities are reproduced through differential access to both public and private environmental resources. The park's profile thus illustrates how structural privilege is materially encoded in urban green space.

5.2 End Street North Park

This park is located at the centre of the city where residential and business buildings intersect, as shown in Figure 4. In the assessment of the park, it was found that the location of the park exposes it to encroachment from homeless people, who lodged around the perimeter of the park, despite it being well-fenced. Within the perimeter of the park, no significant infrastructure was noticed aside from the adjoining buildings that looked like municipal office buildings sharing space with the park; however, about four recreational facilities were seen, mainly for kids. Despite the encroachment, the park environment is well-maintained without any

visible graffiti or damage. This cleanliness is assumed to be due to the location of the park in the city centre, where its status can be easily noticed and thus poses a likely damage to the reputation of the city.

Given its location, adequate parking spaces are lacking, and the available spaces have been encroached by Taxis that have adopted the space (see Figure 6) as an informal park station. This limits the extent of the safety of cars belonging to park users. Going by the adopted indicators, the End Street North Park is limited in infrastructure, recreation amenities, and safety, even though it is well-maintained. It is because of these observations that the park is categorized as fairly maintained.

Figure 4: An Aerial view of End Street North Park, and its neighbourhood. Source: Captured by the Researcher using Google Earth Pro.

Figure 5: A close look at the End Street North Park.

The satellite image showed that the park occupies a relatively small land area of 14,366m², and within this space, two municipal buildings are positioned on either side of the park. From a spatial justice perspective, this park's condition demonstrates what Buchholz (2011) identifies as 'unjust geographies': the park is maintained for reputation rather than residents' welfare, representing a form of procedural injustice where maintenance decisions are driven by the municipality's image management rather than the recreational needs of the surrounding community. This performative maintenance, cleaning for visibility rather than function, illustrates a superficial compliance with EJ distributive norms that masks procedural and recognition failures.

5.3 Doris Park

Doris Park is in Barnato Street of Yeoville, an inner city in Region F, and is characterized by diversity, with residents from multiple nationalities. This disparity, coupled with the economic status of most residents, created a kind of urban slum around the park (see Figure 7). Informal recyclers and homeless people clustered around the dilapidated park facilities. As shown in Figure 8, the basketball court is in shambles, and the surrounding area is littered with makeshift bedding belonging to the homeless, recycled items, indications of fecal contamination, and evidence of waste burning. Furthermore, the park is used as a commercial hub where people display and sell wares, such as clothes, electrical appliances, and related accessories. The park lacks perimeter fencing or any form of infrastructure or protection. Available facilities were open spaces for people to play football and basketball, away from the damaged court.

Figure 6: A Cross Section of the End Street North Park Scenery.

This park failed to attain any of the assessment indicators. Clearly, there is nothing that warrants maintaining at the park; rather, it requires a complete reconstruction. Lastly, the park environment is unsafe, given the concentration of informal economic activities and visible environmental contamination.

Figure 7: An Aerial view of Doris Park in its neighbourhood.

Figure 8: A Cross Section of the Scenery at the Doris Park, Johannesburg.

An assessment of the satellite image indicated that the park occupies 12,636m² of land. It is in a low-income neighbourhood, populated mostly by foreigners. The community streets were littered with waste, dilapidated houses, and evidence of street dwellings. Satellite imagery shows vegetation present, but with irregular distribution and evidence of stress. This pattern resonates with Shackleton and Gwedla's (2021) observation that vegetation stress is disproportionately concentrated in historically disadvantaged neighbourhoods, a legacy of apartheid-era green infrastructure underprovision. The Doris Park case represents the most severe expression of recognition injustice: the community's needs are rendered invisible by municipal governance, and the park's informal appropriation by vulnerable populations is a symptom of deeper spatial exclusion rather than community agency. Addressing conditions at Doris Park therefore requires more than physical

reconstruction; it necessitates recognition of the social drivers of the park's current state within broader equity-oriented urban governance reform.

5.4 Comparative Spatial Analysis from Satellite Imagery

The analysis of the satellite and photograph imagery revealed four distinct spatial patterns among the observed cases. These patterns are interpreted below not merely as descriptive contrasts, but as evidence of structurally produced spatial injustice across the EJ dimensions identified in the theoretical framework.

5.4.1 Park Size and Green Space

Based on measurements, the James & Ethel Gray Park (467,819m²) has the largest land area, which is 32 times that of End Street North Park (14,366m²) and 37 times that of Doris Park (12,636m²). This imbalance in land allocation for parks shows the level of spatial injustice that characterized South Africa (Shackleton & Gwedla, 2021), as buttressed by Alison et al. (2016) and Hofer et al. (2022), a problem that has continued to raise classism among South Africans.

The magnitude of this size disparity itself is analytically significant. Park size directly determines the type and diversity of recreational amenities that can be provided (Badiu et al., 2016), meaning that smaller parks in lower-income areas are structurally constrained in their capacity to meet community recreational needs regardless of maintenance quality. This creates a compounding disadvantage: communities in greatest need of public recreational space, because they lack private alternatives (Venter et al., 2020), and are allocated the smallest public spaces, reproducing rather than compensating for private resource inequality.

5.4.2 Boundary Definition and Encroachment

Across the observed parks, satellite imagery indicated that James & Ethel Gray Park has a clear boundary demarcation, devoid of encroachment. One observed factor preventing encroachment is the layers of security, such as gates manned by security men and several security cameras, created around the community. In the submission of Alison et al. (2016), communities such as this are referred to as 'gated communities,' an eclosed living space with distinct spatial control. Similarly, evidence of a defined boundary is also reflected at the End Street North Park, although with indications of vehicle encroachment in the parking areas. As for the Doris Park, there are no discernible boundaries in aerial view, with informal structures and activities extending into park space.

Boundary clarity is not merely an aesthetic or administrative concern; it is a marker of institutional commitment to park protection. The absence of boundary definition at Doris Park signals municipal disinvestment and corresponds to the lowest score on the infrastructure indicator in this study. This aligns with Shackleton and Njwaxu's (2021) finding that the absence of institutional boundary-setting is a primary driver of park degradation in under-resourced communities.

5.4.3 Surrounding Context

An assessment of the aerial view of the satellite imagery reveals stark differences in neighborhood structure and organization. James & Ethel Gray Park integrates seamlessly into a low-density, planned suburban fabric with spacious properties and tree-lined streets. End Street North occupies a small pocket of the high-density commercial and residential development. Doris Park is situated in an informally developed, high-density neighborhood characterized by irregular building patterns and minimal green space beyond the park itself. This analysis indicated a strong connection between community status and public facility management, a submission in alignment with the conclusions of Alison et al. (2016) and Jeeva and Gumbo (2023).

Surrounding context is not independent of park condition but co-constitutive of it. Following Buchholz's (2011) framework, the spatial organisation of the neighbourhood, itself a product of apartheid planning, determines the resources, social capital, and governance attention that flow to the park. This co-constitutive relationship means that park improvement strategies that treat parks in isolation from their surrounding socio-spatial context are likely to have limited and unsustainable impact.

5.4.4 Infrastructure Visibility

The satellite imagery positioned James & Ethel Gray Park as the most furnished, with multiple visible recreational facilities, such as sports courts, pathways, and parking areas. At the End Street North Park,

infrastructure and sports facilities are limited, while Doris Park has no visible formal infrastructure, aside from the open space with collapsing facilities.

To adequately present a clear comparison among the selected parks, a summary table is prepared as follows:

Assessment Indicators	James & Ethel Gray Park	End Street North Park	Doris Park
Park Area (m²)	467,819	14,366	12,636
Location Context	Affluent suburb	Central Business District	Diverse, mixed-income area
Infrastructure Quality	Adequate infrastructure; well-fenced perimeter; secure boundaries.	Limited infrastructure; shares location with municipal buildings; well-fenced but compromised by encroachment.	No perimeter fencing; no protective infrastructure; completely overrun and exposed.
Recreational Amenities	Extensive facilities for children & adults	Limited amenities for children only	No functional facilities; damaged basketball court; only open spaces available
Maintenance Indicators	Clean surroundings, lush green vegetation; regular upkeep evident	Well-maintained environment; no visible graffiti or damage	No maintenance evident; complete reconstruction needed
Safety Features	Secure fencing, safe for users and property; organized residential setting	Limited parking safety; taxi encroachment; homeless presence around perimeter	Unsafe environment; homeless clustering; visible contamination; open drug/commercial activities.
Community Engagement	Active partnership: James and Ethel Gray Park Foundation; donation-supported maintenance	Not observed	No community organization engagement; park repurposed for informal commerce.
Environmental Condition	Pristine; well-organized; significant lush vegetation, integrated with affluent neighborhood landscape	Clean despite location challenges; maintained to protect the city center image	Littered with makeshift bedding, recycled items, waste-burning evidence, fecal matter
EJ Dimension (Primary)	Distributive + Procedural + Recognition (all dimensions met)	Partial Procedural (maintenance only; distributive & recognition deficits)	All EJ dimensions absent; complete spatial injustice
Overall Assessment Score	Meets all 4 criteria (infrastructure, amenities, maintenance, safety)	Meets 1 of 4 criteria (maintenance only)	Meets 0 of 4 criteria; requires complete reconstruction

Table 3: Comparative Assessment of Key Indicators Across Three Parks. Source: Researcher's compilation.

Evidently, from the comparative assessment, there exists a connection between demographic features of communities and the conditions of public parks therein, a conclusion like that of Dayle (2022) and Hofer et al. (2022). Interpreted through the EJ and Spatial Justice frameworks introduced above, these differences are not incidental but structurally produced: they reflect the cumulative advantage accruing to historically privileged communities and the cumulative disadvantage concentrated in historically marginalised ones. As Venter et al. (2020) argue, such patterns constitute 'Green Apartheid,' wherein the material landscape of urban green infrastructure continues to reproduce the spatial logics of the apartheid era long after its formal abolition.

Furthermore, the observed park size disparity reflects the legacy of apartheid in disproportionate land allocation that favours elite settlements (Khanyile & Fatti, 2022; Shackleton & Gwedla, 2021). These findings align with the submission of Venter et al. (2020), who posited that high-end communities enjoy both private and public facilities, leaving low-end communities with only public facilities, often overwhelmed by excessive use due to high population density.

6 CONCLUSION

The conditions of public parks in Johannesburg and similar contexts have continued to reflect the socio-economic realities of their neighbourhood. This trend, as found in the adopted case study, exposes the spatial injustice that has characterized resource and facility allocation right from apartheid South Africa. Even though apartheid has been formally abolished, its legacy still reflects in the size and condition of parks. Addressing this trend goes beyond park upgrading; it requires that economic inequity be addressed to enable communities to contribute to public infrastructure management.

The assessment framework developed in this study, grounded theoretically in Environmental Justice and Spatial Justice frameworks, and operationalised through four empirically derived indicators (infrastructure, amenities, maintenance, and safety), offers a replicable tool for systematic park condition assessment in South African cities. The application of equal indicator weighting in this pilot study is justified by the absence of validated local benchmarks and the breadth-first aims of a pilot assessment; future studies should explore differential weighting informed by community priority surveys and expert consultation. Furthermore, the partial external validity demonstrated through alignment with Green Flag Award and ParkScore criteria should be extended through formal cross-national comparative validation.

In addition, there is a connection between the parks' condition and usage. This is because people are attracted to parks that offer safety and multiple recreational facilities and avoid those considered unsafe and devoid of necessary facilities. Governments, in addition to addressing systemic inequality, need to encourage community stakeholders' participation in park management, especially in informal contexts. This could reduce park vandalism, as the community would serve as a watchdog for the government.

This study's three-park pilot, while limited in scale, provides a validated foundation for a systematic city-wide assessment of Johannesburg's 2000+ public parks. Future research should expand the sample to achieve statistical power sufficient for regression-based analysis of the relationship between neighbourhood socio-economic characteristics and park quality scores, moving from the observational contrasts documented here to inferential analysis. This would strengthen the evidence base for equity-targeted park investment policy in South African municipalities.

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