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A Comparative Analysis on Pedestrian Experience in Metro Manila Mixed-Use Developments

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Abstract

The role of walkability in shaping city living has received considerable global research attention, yet remains underexplored in Philippine city centers. This study evaluated streetscape walkability in Taguig, Makati, and Ortigas using the Global Walkability Index and the Perceived Walkability Framework. Field observations and participant surveys identified pedestrian priorities, revealing that convenience and time are primary considerations, while intersection design strongly influences mobility choices. Intersections perceived as preferable were associated with greater safety, accessibility, and comfort. The findings stress the need to transition from vehicle-centered to pedestrian-oriented streetscapes and offer actionable recommendations for inclusive, sustainable, and resilient urban planning.

Keywords: Walkability, Streetscapes, Pedestrian, Mixed- Use Developments

DOI:

1.0 Introduction

Metro Manila, the capital region of the Philippines, serves as a major center for economic activity, cultural diversity, tourism, and education (Esteban & Lindfield, 2017). Recognized as one of the fastest urbanizing regions in Asia, it currently ranks 14th among the world's 20 megacities (Regmi, 2017). The region's primary central business districts (CBDs)—Bonifacio Global City (BGC), Ortigas Center, and Makati Central Business District—form the economic core, accommodating commerce, finance, and industry (Arranz IV, 2024; Philippines Daily Inquirer, 2019; Remo, 2023). Each district contributes a unique combination of business, lifestyle, and culture, collectively shaping Metro Manila's urban landscape (Reyes, 2016).

With the continuing expansion of Metro Manila, these CBDs are anticipated to remain central to the development of commerce, sustainability, and community life in the Philippines. However, rapid urbanization has introduced significant challenges, particularly regarding mobility and pedestrian accessibility. A substantial proportion of the region's population consists of daily commuters and members of the working class (Asian Development Bank, 2014). For these individuals, pedestrian walkability—defined as the ease and safety of walking within an area (Kumari & Mohanty, 2024)—is not simply a convenience but an essential requirement.

Walking is a fundamental mode of transport, serving as the primary link between public transit and final destinations. It promotes health, lessens environmental pollution, and improves community cohesion. According to the International Bank for Reconstruction and

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Development (ITDP) of the World Bank Group, walking is essential for basic mobility and offers recreational opportunities (ITDP, n.d.). Despite these benefits, pedestrian walkability is frequently neglected in Philippine urban planning and budgeting.

Recently, BGC, Ortigas, and Makati have steadily prioritized the pedestrian experience. Developers and local government units (LGUs) have adopted measures to enhance sidewalks, lighting, and accessibility in response to the significant volume and diversity of users. These projects correspond with global trends that position walkable, pedestrian-oriented environments as fundamental to environmentally sustainable urban development. Scholars and practitioners have developed various indices and frameworks created to evaluate walkability in pedestrian environments. Krambeck (2006) introduced the Global Walkability Index, which ranks cities globally based on safety, security, and convenience, offering urban planners a standardized assessment tool. In addition, the Perceived Walkability Framework highlights subjective experiences, acknowledging that pedestrian satisfaction is influenced by perceptions of safety, accessibility, and aesthetic quality, as well as infrastructure (Kim et.al, 2023).

Together, these schemes enable a complete analysis of walkability by combining objective measures with lived experiences. Applying them to Metro Manila's CBDs gives insights into how local conditions—traffic patterns, zoning laws, building codes, sidewalk width, and street lighting—shape pedestrian mobility.

This study examines selected districts within Bonifacio Global City, Makati CBD, and Ortigas Center to determine how these areas facilitate or hinder pedestrian movement and experience. Through this evaluation, the research addresses unique local conditions and analyzes the influence of design elements and regulatory systems on walkability.

The study also seeks to establish parameters that can inform policy and guide urban planners, developers, and LGUs in promoting pedestrian-oriented environments. The research is guided by the following objectives:

- To conduct a comparative study of streetscape walkability experiences in Bonifacio Global City, Makati Central Business District, and Ortigas Center using the Global Walkability Index and the Perceived Walkability Framework.
- To develop context-specific parameters for assessing streetscape walkability within mixed-use developments.

The findings of this research are expected to contribute to academic conversations on urban design and mobility, while supplying practical guidance for decision-makers and practitioners. For cities, real estate developers, and LGUs, the study reveals the significance of walkable environments in upholding economic vitality and public health. Walkability isn't solely an aesthetic or recreational consideration; it is a fundamental factor in developing inclusive, resilient, and sustainable cities (Baobeid et.al, 2021). Furthermore, the paper stresses the role of mixed-use zoning in advancing walkability. BGC, Makati, and Ortigas integrate residential, commercial, institutional, and office spaces, thereby forming environments where walking is both necessary and feasible. Analysis of these districts yields insights pertinent to other metropolitan areas in the Philippines and internationally. Litman (2025) stresses the multiple benefits of walkability like mobility, cost savings, land use efficiency, community livability, public health, and equity and argues that traditional transport planning undervalues walking and proposes more comprehensive evaluation methods. Gómez and López (2021) links pedestrian-oriented spaces to improved physical health, lessened traffic congestion, and enhanced social interaction. In global cities such as Singapore (Liow and Sam, 2023), Tokyo (Sorensen, 2001), and New York (Speck, 2012), walkability is recognized as a key metric of metropolitan livability. In the Philippine context, however, research on walkability remains limited, regularly overshadowed by concerns regarding vehicular traffic and infrastructure growth.

This study considers this gap by examining pedestrian experiences in Metro Manila's CBDs. It builds upon international frameworks and adapts them to local conditions, thereby contributing to both global and local scholarship.

2.0 Methodology

A qualitative research design employing a multi-layered approach was implemented to examine factors influencing walkability and the pedestrian experience. This methodological model combined objective measures, spatial mapping techniques, and participant feedback to generate a complete evaluation of urban streetscapes. Integrating these strands of inquiry enabled the study to capture both measurable aspects of pedestrian infrastructure and subjective perceptions of city navigation. This triangulation provided a subtle understanding of the selected sites, pointing to the interaction among physical design, environmental conditions, and lived experience.

Key streetscape areas were selected based on specific infrastructure parameters to ensure the study addressed representative urban contexts. The Global Walkability Index (Krambeck, 2006) was used as a key tool and modified to reflect the Philippine context. Adjustments accounted for local conditions such as uneven pedestrian infrastructure, high traffic volumes, and environmental constraints including climate and air quality. These modifications maintained methodological rigour while addressing the particular challenges of the Philippine urban environment. In addition, a Pedestrian Experience Survey was administered, drawing on the perceived walkability framework proposed by Ye et al. (2024). The survey included a diverse participant group, grounding findings in immediate experiences and showing varied demographic perspectives.

The combination of site selection, systematic field observation, and participant surveys produced important insights into the determinants of walkability. These data aim to inform urban planning and policy development by delivering evidence-based recommendations for creating pedestrian-oriented environments. The research supports the development of walkable, comfortable, and accessible metropolitan areas in the Philippines, adding to broader objectives of inclusion, sustainability, and urban resilience.

3.0 Findings and Discussion

The study examined three distinct streetscape areas, each characterized by divergent approaches to pedestrian circulation and infrastructure design. Bonifacio Global City (BGC), Makati Central Business District (CBD), and Ortigas Center (Figure 1) were chosen for their similarities as intersections in heavy urban networks and their differences in pedestrian infrastructure. The analysis emphasized three typologies: on-grade intersection crosswalks, underground crossings, and elevated walkways, all representing the district's unique

urban philosophy. As shown in Figure 2, the BGC site at McKinley Parkway and 32nd Street demonstrates the district's emphasis on large-scale, on-grade crosswalks. Makati's Ayala Avenue–Paseo de Roxas underpass (Figure 3) represents the CBD's expansive underground walkway system. Ortigas Center's Elevated Plaza (Figure 4) features the district's integration of elevated pedestrian infrastructure with green design principles.

Fig. 1: Location Map of the Selected Intersections in Ortigas Center, Bonifacio Global City (BGC) and Makati Central Business District.
(Source:) Photo c/o Google Earth 2024.

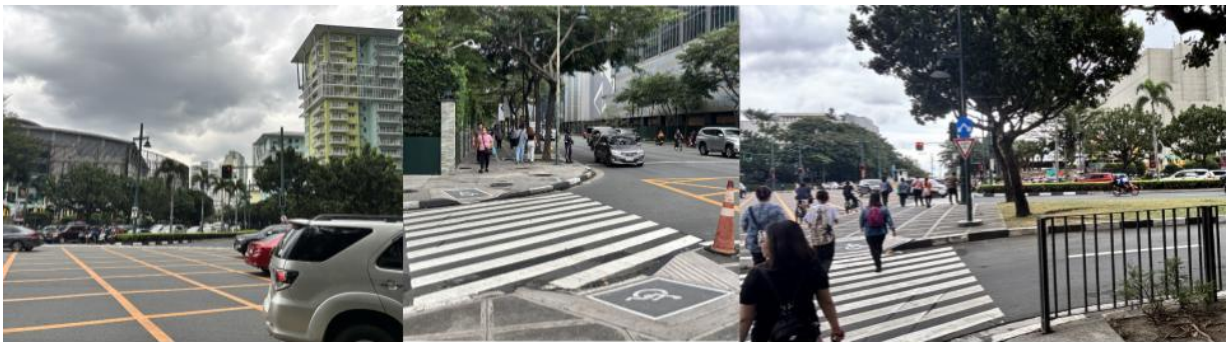

Fig. 2: Photos of Intersection in McKinley Parkway cor. 32nd Ave., Bonifacio Global City.

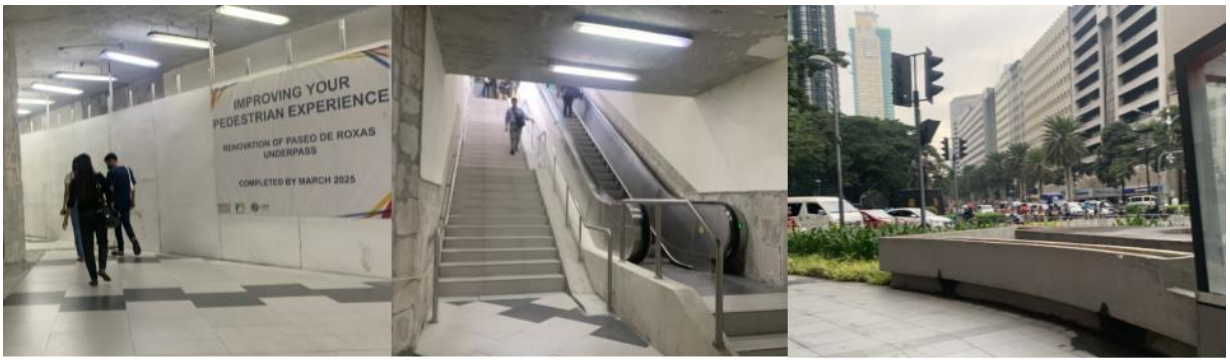

Fig. 3: Photos of Ayala Ave. cor. Paseo De Roxas Underground Walkway, Makati Central Business District.

Fig. 4: Photos of the Ortigas Elevated Plaza, Ortigas Center, Pasig City.

Field observations used a modified version of the Global Walkability Index, originally developed by the World Bank and adapted for the Philippine context. This adaptation ensured sensitivity to local conditions, cultural practices, and government standards, resulting in an assessment framework that is both exacting and contextually relevant. Observations followed a structured checklist examining

pedestrian infrastructure, traffic conditions, and environmental integration. Elements such as street furniture, signage, lighting, traffic signals, and landscaping were systematically evaluated for their contributions to functionality and atmosphere. Accessibility was prioritized, mainly concerning provisions for individuals with special needs. Safety and security were assessed through both physical features and the perceived sense of protection. The wider environmental context was considered, with emphasis on sustainability practices and the combination of natural elements. Pedestrian patterns were also observed to capture patterns of movement, comfort, and engagement with the space.

Across all three sites, safety measures were consistently present, with CCTV surveillance and stationed marshals ensuring pedestrian security. Ortigas Center distinguished itself further by incorporating a dedicated kiosk staffed by security personnel, reinforcing its emphasis on safety. Environmental integration varied across the districts. At BGC's McKinley Parkway–32nd Street crosswalk, refuge islands and planting strips enhanced both design and environmental quality. In Makati, greenery was limited to above-ground planting strips, while the underground underpass lacked softscape elements, resulting in limited environmental integration. Ortigas Center's Elevated Plaza, however, stood out as a model of environmental design, with its circular dome allowing natural light to pass through to the intersection below, denoting a deliberate effort to harmonize built and natural environments.

These built differences directly influenced pedestrian patterns and experience. In BGC, the proximity of the crosswalk to commercial, educational, and office establishments generated dynamic pedestrian flow, with people navigating the intersection efficiently under well-regulated signals. In Makati, the enclosed underpass provided a more comfortable experience, shielding users from the weather and vehicular traffic, and artificial air conditioning further enhanced comfort. Ortigas Center's Elevated Plaza created a leisurely atmosphere, encouraging lingering and social interaction through seating and shaded canopies. Observations showed that pedestrians across all sites often walked individually, in pairs, or in small groups, frequently using mobile phones while moving through the spaces. This pattern emphasizes the casual, responsive nature of pedestrian movement in these urban contexts.

Table 1. Summarized Table of Respondents by Age

Age Group	BGC	Makati	Ortigas	Total	%
Total	**17**	**39**	**9**	**65**	**100**
22-32	12	32	1	45	69.23
33-44	4	7	8	19	29.23
45-49	1	0	0	1	1.54

To complement field observations, a Pedestrian Experience Survey was conducted with 65 participants—17 from BGC, 39 from Makati, and 9 from Ortigas—representing residents, office workers, and long-term users of the districts. The survey evaluated opinions on safety and security, visual comfort, cleanliness, accessibility, and pet-friendliness. Results presented notable distinctions among the districts. BGC consistently achieved the highest ratings, with scores of 3.76 for safety, 3.88 for visual comfort, 4.24 for cleanliness, 3.71 for accessibility, and 4.00 for pet-friendliness. These findings show BGC's reputation as a pedestrian-friendly district with a strong emphasis on inclusion and environmental quality. Makati and Ortigas, while performing comparably in safety and visual comfort (both scoring 3.56 in aesthetics), fell short in accessibility, particularly in inclusiveness provisions. Ortigas Center's elevated infrastructure, even though innovative in environmental integration, did not achieve the same level of perceived cleanliness or accessibility as BGC.

Table 2. Summarized Table of Respondents by Occupation

Occupation	BGC	Makati	Ortigas	Total	%
Total	**17**	**39**	**9**	**65**	**100**
Student	1	1	0	2	3.08
Entrepreneur	1	0	0	1	1.54
Private Company Employee	15	34	7	56	86.15
Government Employee	0	2	2	4	6.15
NGO Employee	0	1	0	1	1.54
Retired	0	1	0	1	1.54

To summarize, the comparative analysis shows how infrastructure typologies shape pedestrian experience in Metro Manila's major business districts. On-grade crosswalks, underground passages, and elevated walkways each serve as distinct urban strategies, influencing safety, accessibility, atmosphere, and pedestrian patterns. The findings show that environmental integration and inclusiveness are essential dimensions of walkability, extending beyond functional circulation to include sustainability, aesthetic value, and social well-being. These insights carry major implications for urban planners, architects, and decision-makers, supporting the importance of designing pedestrian spaces that sustain efficiency, comfort, and environmental balance.

4.0 Conclusion and Recommendations

This study set out to compare streetscape walkability experiences across three metropolitan contexts using the Global Walkability Index and the Perceived Walkability Framework, while also developing context-specific parameters for assessing walkability in mixed-use developments. The comparative analysis revealed that Bonifacio Global City (BGC) consistently received the highest positive responses, particularly at intersections, where safety, security, visual comfort, cleanliness, accessibility, and even pet-friendliness emerged as critical factors. In contrast, the other two cities demonstrated gaps in these parameters, underscoring the variability of walkability experiences across different urban environments.

The findings underscore the reality that walkability is not a universal construct but rather a context-sensitive experience shaped by

cultural expectations, socioeconomic conditions, and the physical form of the city. BGC's relatively high scores reflect deliberate investments in pedestrian infrastructure, urban management, and design strategies that prioritize human-scale environments. The contrast with other metropolitan areas highlights the unevenness of urban development, where car-centric planning, fragmented sidewalks, and inadequate maintenance continue to compromise pedestrian comfort and safety. This variability suggests that while global frameworks such as the Global Walkability Index provide a useful baseline, localized parameters are essential for capturing the nuances of walkability in rapidly urbanizing regions.

By identifying and validating these parameters, the study contributes to a more accurate and context-sensitive understanding of walkability in metropolitan areas such as Metro Manila. The emphasis on safety, convenience, and time efficiency resonates strongly with the lived realities of working-class commuters, who often navigate congested streets and limited pedestrian infrastructure. For this demographic, walkability is not merely a matter of leisure or lifestyle but a daily necessity tied to economic productivity, health, and quality of life. Thus, designing pedestrian-centric streetscapes becomes not only a matter of urban aesthetics but also a social equity issue. Streets that are safe, accessible, and inclusive directly support mobility for those who rely most heavily on walking and public transport.

The study's insights provide developers, policymakers, and urban planners with evidence-based guidelines that can inform policies and codes, shifting urban development away from car-centric models toward pedestrian-focused environments. This shift is particularly urgent in the context of climate change and sustainability. Walkable streetscapes reduce reliance on private vehicles, thereby lowering carbon emissions and contributing to healthier urban ecosystems. Moreover, pedestrian-friendly environments foster social interaction, community cohesion, and economic vitality by encouraging people to linger, shop, and engage in public spaces. In this sense, walkability is not only a transportation issue but also a catalyst for broader urban regeneration.

Another important contribution of this research lies in its methodological approach. By combining comparative evaluation with the development of localized parameters, the study demonstrates the value of hybrid frameworks that balance global standards with local realities. This dual approach ensures that assessments are both rigorous and relevant, avoiding the pitfalls of applying universal metrics to contexts where cultural, climatic, and infrastructural conditions differ significantly. For instance, the inclusion of pet-friendliness as a parameter reflects the evolving lifestyles in BGC, where pets are increasingly integrated into urban life. Such parameters may not appear in global indices but are highly relevant in specific metropolitan contexts.

Looking forward, the study points to several avenues for future research. Expanding the scope to incorporate simultaneous field observations under varied weather conditions would provide a more dynamic understanding of walkability. Rain, heat, and humidity—common in tropical climates—can significantly alter pedestrian experiences, affecting comfort, safety, and accessibility. Similarly, analyzing broader streetscape networks within Central Business Districts would allow researchers to move beyond isolated intersections and capture the continuity of pedestrian journeys. Walkability is experienced not in fragments but as a sequence of connected spaces, and understanding these networks is crucial for designing coherent pedestrian systems.

Future studies could also integrate technological tools such as GIS-based spatial analysis, mobile applications for real-time pedestrian feedback, and sensor-based monitoring of environmental conditions. These innovations would enrich the data and provide more granular insights into how pedestrians interact with urban spaces. Additionally, interdisciplinary approaches that combine urban design with public health, sociology, and environmental science could deepen the understanding of walkability's impacts on physical activity, social inclusion, and ecological resilience.

Ultimately, the study demonstrates that comparative evaluation, coupled with the development of localized parameters, can generate actionable insights for urban development projects. The findings affirm that walkability is not a luxury but a fundamental dimension of livable cities. As Metro Manila and other rapidly urbanizing regions continue to grow, the challenge will be to embed pedestrian-centric principles into the DNA of urban planning, ensuring that streets are designed not only for vehicles but for people. This requires a paradigm shift in policy, investment, and design culture—one that recognizes walking as a right, a necessity, and a cornerstone of sustainable urban futures.

The research highlights the transformative potential of walkability when approached through both global frameworks and localized parameters. BGC's example shows that deliberate design and management can create pedestrian environments that are safe, inclusive, and vibrant. The gaps observed in other metropolitan contexts remind us that much work remains to be done. By continuing to refine methodologies, expand comparative analyses, and advocate for pedestrian-centric policies, scholars and practitioners can contribute to cities that are not only functional but also humane—cities where walking is celebrated as the most fundamental and democratic form of mobility.

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Paper Contribution to Related Field of Study

A comprehensive understanding of pedestrian behavior and movement patterns is essential for designing efficient circulation systems in metropolitan areas. Analyzing these factors enables planners to create environments that enhance pedestrian safety and accessibility while optimizing vehicular traffic flow. This dual benefit underscores the interconnectedness of urban mobility systems and highlights

the significance of pedestrian-oriented design. Positioning pedestrian circulation as a central component of landscape architecture and urban design demonstrates how studying pedestrian behavior can inform spatial planning decisions, ensuring that circulation networks are human-centered and effectively integrated with broader transportation systems. In landscape architecture, this approach supports the adoption of holistic, evidence-based design strategies that balance the needs of pedestrians and vehicles, thereby promoting sustainable and inclusive metropolitan environments.

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