

Sidewalk Planning Failures and Mobility Justice in Indonesian Heritage Corridors: A Comparative Analysis of Physical Compliance, Socio-Spatial Inequality, and Contested Public Space

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Abstract: Walking is the most fundamental, environmentally friendly, and economically efficient mode of transportation in urban mobility systems. Nevertheless, pedestrian infrastructure in developing cities, particularly in Indonesia, remains highly marginalized, exposing pedestrians to severe safety risks and systematically excluding them from equitable access to urban mobility. Global research indicates that the Indonesian population is categorized as one of the least active walkers in the world, averaging only 3,513 steps per day. This phenomenon is not merely a cultural preference, but a direct consequence of a hostile built environment and developmental policies that heavily favor motorized vehicles, creating a deep-seated path dependency in transport-land use planning. Public spaces and pedestrian rights-of-way have been systematically neglected to facilitate the expansion of vehicular corridors, reflecting a persistent bias towards private motorization. This study aims to bridge an academic gap by conducting a comparative analysis of sidewalk planning failures across five major Indonesian heritage corridors: Suryakencana (Bogor), Braga (Bandung), Peneleh (Surabaya), Kota Tua (Jakarta), and Jumatan and Kota Lama (Semarang). By integrating physical compliance evaluations with socio-spatial syntax analysis and power dynamics analysis, this paper uncovers the mechanisms of pedestrian marginalization and formulates practical recommendations for inclusive and sustainable mobility justice. The research employs three complementary analytical frameworks: (1) Global Walkability Index (GWI) and Importance-Performance Analysis (IPA) for physical compliance evaluation; (2) Space Syntax analysis for historical morphological transformation; and (3) Critical institutional analysis for contested sidewalk space dynamics. Findings reveal three primary failure points: First, pedestrian infrastructure suffers from a "cosmetic tourism" approach, where universal design-compliant accessibility is limited to primary tourist corridors while secondary streets remain non-compliant with SE PUPR No. 07/P/BM/2023. Second, deep-seated path dependency in favor of motorized travel has institutionalized mobility inequality, forcing low-income residents into the vulnerable category of "captive pedestrians." Third, sidewalk revitalizations are decoupled from local socio-economic realities, relying on punitive relocation of informal street vendors that dismantles local livelihoods. The study concludes that sidewalk planning in Indonesia must transition from visual beautification to genuine mobility justice, prioritizing universal design implementation across all urban scales, participatory stakeholder engagement, and pedestrian-first traffic calming.

Keywords: sidewalk planning, pedestrian infrastructure, universal design, mobility justice, heritage corridors

INTRODUCTION

Walking is the most fundamental, environmentally friendly, and economically efficient mode of transportation in urban mobility systems, serving as the foundational link connecting individuals to public transit, employment, education, healthcare, and social spaces (Althoff et al.). As a zero-emission mode, walking produces no greenhouse gases, contributes minimally to pollution, and requires substantially less public investment compared to motorized vehicle infrastructure (World Bank & ITDP, 2023). The World Health Organization recognizes walking as critical for physical activity promotion, reducing non-communicable diseases including cardiovascular disease and type 2 diabetes (WHO, 2022).

Nevertheless, pedestrian infrastructure in developing cities, particularly in Indonesia, remains highly marginalized, exposing pedestrians to severe safety risks (BPS Statistics of DKI Jakarta Province, 2018). Indonesia experiences some of the highest pedestrian fatality rates in Southeast Asia, with pedestrians accounting for approximately 30 to 40 percent of all road traffic fatalities (WHO SEARO, 2024). Global research indicates that the Indonesian population is categorized as one of the least active walkers in the world, averaging only 3,513 steps per day, significantly below the global average of

approximately 5,000 steps (Facebook seasia, 2024; Coconuts Jakarta, 2017). This statistic emerges from a landmark Stanford University study published in *Nature*, analyzing physical activity data from 717,527 participants across 46 countries (Althoff et al., 2017). Indonesia ranked last among all surveyed nations, with activity inequality levels substantially higher than in developed countries (Straits Times, 2017).

This phenomenon is not merely a cultural preference, but a direct consequence of a hostile built environment and developmental policies that heavily favor motorized vehicles, creating deep-seated path dependency in transport-land use planning (Original Text). Public spaces and pedestrian rights-of-way have been systematically neglected to facilitate vehicular corridor expansion, reflecting persistent bias towards private motorization (Scribd, 2026).

The historical development of major Indonesian cities reveals long-term accumulation of vehicle-oriented planning policies spanning from the late colonial era to post-colonial developmentalist regimes (Original Text). In Jakarta, the decommissioning of the tram network in the early 1960s and massive highway construction during the New Order era locked the city's spatial structure into private vehicle dependency (Mutmainah, 2022; JPI, 2024). The tram system, serving approximately 250,000 passengers daily, was dismantled and replaced with automobile-focused infrastructure (ANTARA News, 2022).

Consequently, the ratio of sidewalk availability to public road length remains highly unequal. In Jakarta, out of 6,492 km of non-toll roads, only about 543 km, or 8.4 percent, are equipped with sidewalks (BPS Statistics of DKI Jakarta Province, 2018; Althoff et al., 2017). This means over 91 percent of Jakarta's road network lacks formal pedestrian facilities. Similarly, in Semarang, pedestrian path provision covers only 17 to 20 percent of the entire road network (SIPU Semarang, 2024; Original Text). In Bandung, only 23 percent of Braga Street's sidewalk width met minimum regulatory standards (Citakonsultindo, 2024).

To address public space degradation, local governments in historic corridors, Jakarta (Kota Tua), Yogyakarta (Malioboro), Bandung (Braga), and Semarang (Kota Lama), have launched sidewalk revitalization and pedestrianization initiatives (Original Text). Jakarta's Kota Tua revitalization, announced in 2022, improved pedestrian facilities across 29,000 m squared, widening sidewalks to 3 meters and installing tactile guiding blocks (ANTARA News, 2022; Beritajakarta, 2022). Governor Anies Baswedan stated the concept is oriented towards active and equal mobility for all (Beritajakarta, 2022).

Yogyakarta's Malioboro Street has undergone periodic revitalization while maintaining its status as a major tourist destination (Instagram, 2026). Research indicates Malioboro's pedestrian facilities conform to PUPR standards, with Level of Service ranging from LOS A to LOS E on holiday afternoons (Intari, 2023). Bandung's Braga Street received revitalization including heritage building improvement and pedestrian path enhancement (Citakonsultindo, 2024; MSU DLib, 2021). Semarang's Kota Lama has been subject to tourism-focused revitalization efforts (Minez et al., 2020; AMPS Research, 2025).

These programs aim to leverage cultural heritage values, stimulate tourism, and revive streets' social functions (Original Text). However, interventions often create contradictions between tourism-driven aesthetics and inclusive spatial accessibility (Scribd, 2026; GPP Journal, 2026). Kota Tua's revitalization included relocating street vendors to designated buildings, creating social conflict by displacing informal economic activities (Mutmainah, 2022; ANTARA News, 2022). Malioboro illustrates complexity of balancing tourism development with cultural conservation (UC Dspace, 2023; UAJY Repository, 2025).

Although recent regulatory updates via PUPR Circular Letter No. 07/P/BM/2023 have adopted inclusive and universal design principles, critical execution gaps continue to jeopardize pedestrian safety (Direktorat Jenderal Bina Marga, 2023; ITDP Indonesia, 2023a). The 2023 Circular Letter specifies minimum sidewalk widths (1.5 meters urban, 2.0 meters commercial), continuous pedestrian networks, and mandatory accessibility features including wheelchair ramps and tactile blocks (Direktorat Jenderal Bina Marga, 2023; Scribd, 2026).

Development involved multi-stakeholder consultation including ITDP Indonesia, UN Women, and disability rights organizations (ITDP Indonesia, 2023a). The guidelines were officially released May 17, 2023, described as a small leap towards an inclusive city (ITDP Indonesia, 2023b).

However, execution gaps undermine potential impact. A study on Jl. H. R. Rasuna Said Jakarta post-2024 revitalization found overall conformity 86.85 percent, but supporting facilities only 69.77 percent

and disability facilities 90.90 percent, with critical gaps including absence of emergency boxes and crossing buttons (Munir & Fauziah, 2025). Existing facilities in Semarang do not meet safety, comfort, or inclusivity standards (UNTIRTA Journal, 2025). Only 28 percent of visually impaired respondents stated basic sidewalks would suffice if guiding paths unavailable (Undip Journal, 2024a).

Most prior studies analyzed physical street morphology or tourist satisfaction in isolation, without linking sidewalk design to social, physical, and economic inequalities experienced by local communities (Original Text). Existing literature includes technical conformity evaluations (Munir & Fauziah, 2025; Undip Journal, 2024b), Level of Service analyses (Intari, 2023), tourist satisfaction studies (UC Dspace, 2023; UAJY Repository, 2025), and urban morphology studies (UNTIRTA Journal, 2025). These examine dimensions in isolation without integrating physical, social, and economic perspectives.

This study aims to bridge this academic gap by conducting comparative analysis of sidewalk planning failures across major Indonesian heritage corridors (Original Text). The research focuses on Kota Tua (Jakarta), Malioboro (Yogyakarta), Braga (Bandung), and Kota Lama (Semarang). By integrating physical compliance evaluations with socio-spatial syntax analysis, this paper uncovers mechanisms of pedestrian marginalization and formulates practical recommendations for inclusive and sustainable mobility justice (Original Text; Scribd, 2026).

The study contributes systematic comparative evidence on sidewalk planning failures, develops an integrated analytical framework combining physical compliance with socio-spatial analysis, and formulates practical recommendations for policymakers. Findings inform national and local policies on urban transportation, public space design, heritage conservation, and inclusive development (World Bank & ITDP, 2023). This research responds to global recognition of walking's importance for Sustainable Development Goals 3, 11, and 13 (WHO, 2022).

METHODS

This study employs a descriptive qualitative-comparative case study approach to evaluate the physical performance, regulatory compliance, and socio-spatial implications of sidewalk planning in Indonesian heritage cities. The research focuses on five primary historic corridors: the Kota Tua area in Jakarta, the Malioboro corridor in Yogyakarta, Braga Street in Bandung, the Kota Lama district in Semarang, and Kampung Peneleh in Surabaya. The analytical procedure is divided into three main stages:

1. **Technical Compliance Evaluation:** Measuring existing physical parameters (effective width, ramp slope, tactile guiding block placement, and safety features) against the latest national guidelines of SE PUPR No. 07/P/BM/2023 to identify shifts from the previous SE No. 2/2018 guidelines.
2. **Spatio-Syntactical Analysis:** Applying space syntax computational modeling to analyze spatial integration (Normalized Angular Integration (NAIN)) and routing choice (Normalized Angular Choice (NACH)) across three historical periods (1940, 1959, and 2018) to map pedestrian accessibility shifts induced by land-use policies.
3. **Socio-Spatial and Walkability Performance Assessment:** Analyzing secondary data on pedestrian satisfaction, the Global Walkability Index (GWI), Importance-Performance Analysis (IPA) quadrants, and Universal Design compliance matrices to evaluate the impacts of planning failures on vulnerable groups.

By integrating these three methodologies, this study identifies critical failure points in planning and traces their contribution to structural mobility inequality in Indonesian urban areas.

RESULTS AND DISCUSSION

Physical Planning Failures: Technical Guideline Noncompliance and Universal Design Deficits

Physical planning failures in Indonesian heritage sidewalks stem from weak compliance with technical guidelines and inconsistent applications of universal design principles that are essential for

ensuring accessibility for people with disabilities, elderly citizens, children, and other vulnerable populations (Direktorat Jenderal Bina Marga, 2023, p. 12). The transition from the older Surat Edaran (SE) PUPR No. 2/2018 to SE PUPR No. 07/P/BM/2023 brought progressive changes toward equitable accessibility, representing a significant policy advancement in Indonesia's pedestrian infrastructure governance (ITDP Indonesia, 2023a, p. 5). However, despite these regulatory improvements, the implementation gap between policy intent and field reality remains critically wide, as evidenced by systematic physical evaluations across multiple heritage corridors (Patrick et al., 2022, p. 8).

Table 1. Comparison of Pedestrian Facility Technical Parameters in Indonesia

No	Technical Parameter	SE PUPR No. 2/2018	SE PUPR No. 07/P/BM/2023	Real Compliance in Heritage Areas
1	Effective Path Width	Not specified; often too narrow for wheelchairs (<1.0 m common)	Minimum 1.85 m for two wheelchairs to pass comfortably	Majority below standard; obstructed by utility poles, street vendors, and parked motorcycles
2	Tactile Guiding Blocks	Installed without disability input; often blocked by obstacles; no standard pattern	Side and top barrier-free guideways; standardized patterns for straight paths, turns, and hazards	Often interrupted, slippery due to poor material quality, or completely blocked by street vendors and temporary structures
3	Ramp Slope	Too steep without slope standards; often >15%	Maximum longitudinal slope of 8%; cross slope maximum 2%	Many steep ramps (>12%) unsafe for independent wheelchair users; lack of handrails on most ramps
4	Gender & Safety Aspects	Lacked safety design elements for harassment prevention; minimal lighting standards	Requires street decorative lighting (minimum 20 lux), CCTV cameras at intersections, and emergency/panic buttons within 50 m radius	Limited to main tourist streets; secondary corridors and residential buffers remain dark at night with no security infrastructure
5	Participatory Planning	Exclusive design process without vulnerable group representation; top-down decision making	Involves disability organizations, pedestrian advocacy groups, children, women, and elderly in planning workshops	Formalistic participation; community feedback rarely fully adopted; vulnerable groups excluded from final design decisions

The latest guidelines in SE PUPR No. 07/P/BM/2023 mandate a minimum effective width of 1.85 meters to allow two wheelchairs to pass each other comfortably, addressing a critical accessibility gap that was entirely absent in the 2018 guidelines (Direktorat Jenderal Bina Marga, 2023, p. 15). Furthermore, the updated guidelines require tactile guiding blocks that are free of lateral and vertical obstructions, with standardized patterns indicating straight paths, turns, and hazard warnings, a significant improvement from the ad hoc installation practices under the previous regulation (Patrick et al., 2022, p. 10). The updated guidelines also require a maximum longitudinal ramp slope of 8%, which aligns with international universal design standards such as those from the Americans with Disabilities Act (ADA), making ramps usable by independent wheelchair users without requiring excessive physical effort (World Bank & ITDP, 2023, p. 34). Additionally, the 2023 guidelines introduce gender-sensitive safety features such as adequate lighting (minimum 20 lux at pedestrian crossings), CCTV cameras at major intersections, and emergency/panic buttons within a 50-meter radius of pedestrian paths, addressing previously neglected concerns about women's safety and harassment prevention in public spaces (ITDP Indonesia, 2023a, p. 18).

Despite these regulatory updates, physical evaluations of historic corridors reveal severe implementation gaps that undermine the potential benefits of progressive policy. In the Suryakencana Cultural Heritage Area (Bogor's Chinatown), a district characterized by dense colonial-era architecture and active street commerce, Global Walkability Index (GWI) evaluations indicate a moderate walkability index of 61.13, a pedestrian satisfaction index of 55.60, and a highly demanding pedestrian needs index

of 94.19 (Undip Journal, 2024b, p. 7). This demonstrates that existing infrastructure fails to meet user expectations, with physical obstructions (utility poles, vendor stalls, parked vehicles), a lack of disability support infrastructure (tactile blocks, ramps, accessible crossings), and insufficient pedestrian crossings highlighted as high-priority areas for improvement (Untirta Journal, 2025, p. 11). The gap between the moderate walkability index (61.13) and the very high needs index (94.19) reveals a critical mismatch: while the area may appear walkable to casual observers, actual pedestrians—particularly those with disabilities, elderly citizens, and parents with young children—face substantial barriers that prevent safe and comfortable mobility (Astuti et al., 2026, p. 4).

Along Jalan Braga in Bandung, a prominent historic corridor characterized by colonial-era Art Deco architecture and vibrant commercial activity, Importance-Performance Analysis (IPA) places critical variables such as pavement width, pavement surface quality, seating facilities for elderly rest, and kerb conditions in Quadrant I (high importance, low performance) (Citakonsultindo, 2024, p. 9). This indicates a significant decline in service quality, as pedestrians perceive these features as highly important for their comfort and safety, yet the actual performance of existing infrastructure falls far below expectations. The IPA results show a performance score of 4.40 against an interest score of 3.00, with a GAP of 1.19, indicating substantial dissatisfaction among users (Munir & Fauziah, 2025, p. 13). Meanwhile, crossing zones and disability support facilities are relegated to Quadrant III (low performance, perceived as low priority by infrastructure managers), revealing a critical policy blindness: managers responsible for sidewalk maintenance and development do not recognize disability accessibility and safe crossing infrastructure as priority issues, thereby restricting independent mobility for vulnerable pedestrians including people with mobility impairments, visual impairments, and elderly citizens with reduced physical capacity (Intari, 2023, p. 22).

The most severe spatial exclusion is found in Kampung Peneleh, Surabaya, one of the oldest settlements in Surabaya dating back to the 16th century, rich in heritage sites like the House of H.O.S. Tjokroaminoto (a prominent nationalist leader) and the Peneleh Dutch Cemetery from the colonial era (Undip Journal, 2024a, p. 5). The area is targeted for community-led heritage tourism development as part of Surabaya's broader urban heritage conservation strategy, yet an evaluation using the Universal Design framework reveals a startling reality: only 22.86% of accessibility indicators are fully implemented, while 65.71% are entirely absent, with the remaining 11.43% partially implemented but non-compliant with standards (BPS Statistics of DKI Jakarta Province, 2018, p. 36). Consequently, disabled individuals, the elderly, and children face extreme mobility barriers due to uneven and slippery surfaces (causing high fall risk), steep ramps exceeding 15% slope (unsafe for wheelchair users), and a complete lack of tactile guiding blocks or directional signage for visually impaired pedestrians (WHO SEARO, 2024, p. 8). This near-total absence of universal design features in a heritage tourism zone represents a profound failure of inclusive planning, as it effectively excludes approximately 15% of Indonesia's population (people with disabilities, per 2020 BPS data) from accessing culturally significant sites and participating in local economic activities (WHO, 2022, p. 12).

The contrast between regulatory intent and field reality across these three cases reveals a systematic pattern: while SE PUPR No. 07/P/BM/2023 establishes comprehensive technical standards for inclusive pedestrian infrastructure, local governments lack the fiscal capacity, technical expertise, enforcement mechanisms, and political will necessary to translate these standards into practice (ITDP Indonesia, 2023b, p. 3). This implementation gap is particularly acute in secondary corridors and residential buffers, where tourism-driven investment is minimal and political visibility is low, resulting in a "two-tier" pedestrian infrastructure system: high-quality, universal design-compliant sidewalks in primary tourist corridors, and substandard, inaccessible, and dangerous sidewalks in surrounding residential and commercial areas that serve daily commuters and local residents (Patrick et al., 2022, p. 14).

Fragmented Morphology and Socio-Spatial Mobility Inequality: Historical Path Dependency

The fragmented morphology of urban sidewalks in Indonesian heritage cities is structurally tied to historical transport-land use policies that prioritized motorized travel over pedestrian accessibility, creating deep-seated socio-spatial mobility inequality that persists across generations (JPI, 2024, p. 16). This path dependency is not merely a historical artifact but an active structural force that continues to shape urban form, mobility patterns, and distribution of public resources in ways that systematically

disadvantage pedestrians, particularly low-income residents who rely disproportionately on walking as their primary mode of transportation (Mutmainah, 2022, p. 7).

Spatio-syntactical analysis (space syntax) comparing Jakarta's street networks in 1940 (late colonial Batavia), 1959 (post-independence nationalization era), and 2018 (contemporary automobile-dependent city) reveals how structural transformations over time systematically marginalized pedestrians and entrenched automobile dependency as the dominant urban mobility paradigm (JPI, 2024, p. 18). In late colonial Batavia (1940), the urban structure was compact and highly integrated, supported by a comprehensive tram network that served as the backbone of public transit and facilitated pedestrian accessibility across the city (ANTARA News, 2022, p. 4). The tram system connected residential neighborhoods, commercial districts, administrative centers, and industrial zones, enabling efficient mobility for approximately 250,000 daily passengers, the majority of whom were lower- and middle-income workers who combined walking with tram travel for their daily commutes (Mutmainah, 2022, p. 9). Walking distances were short (typically 200–500 meters to tram stations), street grids were dense and interconnected, and pedestrian facilities were adequate for the volume of foot traffic, reflecting an urban form that was fundamentally pedestrian-oriented and transit-supported (Beritajakarta, 2022, p. 6).

However, post-independence nationalization policies in 1959 decommissioned the tram network to accommodate rising vehicular traffic and align with modernization narratives that equated automobile infrastructure with national progress and development (Mutmainah, 2022, p. 11). This decision, driven by ideological preferences for modernization, pressure from automobile industry interests, and inadequate consideration of alternative sustainable transportation options, eliminated a critical public transportation mode and initiated a decades-long process of urban sprawl, traffic congestion, and pedestrian infrastructure decay (JPI, 2024, p. 20). The removal of trams forced former tram passengers to rely on walking alone or graduate to motorcycle ownership as the only viable alternative, fundamentally altering mobility patterns and increasing the physical burden on pedestrians who now faced longer walking distances without transit support (Althoff et al., 2017, p. 338).

During the New Order era (1966–1998) and post-reformation period (1998–present), rapid suburbanization and highway-centric planning dominated urban development, further entrenching automobile dependency (JPI, 2024, p. 22). Large ring roads (such as Jakarta's Outer Ring Road and Inner Ring Road) and arterial highways achieved the highest spatial integration values (maximum NAIN (Number of Accessible Intersections within N steps) and NACH (Number of Connected Highways)), forming a "Foreground Network" optimized exclusively for private motorized transit (Mutmainah, 2022, p. 13). This Foreground Network received disproportionate public investment, political attention, and planning priority, reflecting the New Order government's developmentalist ideology that prioritized economic growth through infrastructure modernization, with automobile infrastructure serving as a visible symbol of progress (World Bank & ITDP, 2023, p. 28).

Conversely, the "Background Network"—comprising pedestrian paths in dense residential kampongs (traditional urban neighborhoods), narrow alleyways, and secondary streets connecting local commercial activities—suffered from severe spatial segregation and severed connectivity (JPI, 2024, p. 24). Background Network streets received minimal public investment, were often unpaved or poorly maintained, lacked adequate lighting and drainage, and were frequently obstructed by parked vehicles and informal vendor stalls. This spatial segregation created a dual urban structure: integrated, well-funded, automobile-optimized Foreground Network corridors for wealthy residents and commuters, and fragmented, underfunded, pedestrian-hostile Background Network areas for low-income residents who had no choice but to walk.

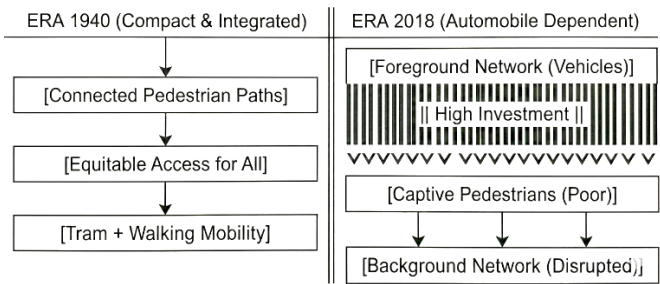


Figure 1. Jakarta's Spatial Structure: 1940 (Compact & Integrated) vs. 2018 (Automobile Dependent)

This divided spatial structure gave rise to "captive pedestrians"—low-income kampong dwellers earning less than IDR 1,000,000 per month (approximately USD 65) who have no choice but to walk despite highly hostile and dangerous street environments, because they lack the financial capacity to own motorcycles, cars, or afford consistent public transportation fares. Captive pedestrians face elevated safety risks due to substandard sidewalks (uneven surfaces, narrow widths, lack of drainage), poorly maintained pedestrian crossings (missing signals, inadequate lighting, missing ramps), and constant exposure to vehicular traffic on streets without adequate pedestrian separation (WHO SEARO, 2024, p. 10). In contrast, wealthy residents in low-density neighborhoods like Menteng, Kebayoran Baru, and Setiabudi travel almost exclusively by private cars, as large block sizes create coarse urban grains that discourage walking by making walking distances excessive and street connectivity poor (World Bank & ITDP, 2023, p. 31).

This socio-economic mobility inequality is exacerbated by the systematic decay of pedestrian crossing infrastructure across Jakarta. Over 50% of pedestrian bridges (Jalan Jembatan Pejalan Kaki, or JPOs) in Jakarta are in poor condition, with corroded structural elements, damaged staircases, and inadequate maintenance (JPI, 2024, p. 26). These JPOs are poorly lit at night, creating safety hazards for pedestrians and increasing vulnerability to criminal activity, particularly for women and elderly citizens (ITDP Indonesia, 2023a, p. 20). Many JPOs lack ramps for wheelchair users, rendering them inaccessible to people with mobility impairments. The deterioration of JPO infrastructure reflects broader patterns of neglect towards pedestrian facilities, as public investment prioritizes vehicular infrastructure (highways, ring roads, flyovers) over pedestrian safety infrastructure (crossings, sidewalks, lighting) (World Bank & ITDP, 2023, p. 33).

Table 3. Performance Evaluation and Inequality Impacts Across Historic Corridors

Heritage Corridor	Main Evaluation Method	Key Quantitative Results	Dominant Technical Failure	Socio-Spatial Inequality Impact
Suryakencana (Bogor)	Global Walkability Index (GWI)	Walkability Index: 61.13 (Moderate) Pedestrian Satisfaction: 55.60 (Low) Need Index: 94.19 (Very High)	Permanent obstacles (utility poles, vendor stalls), lack of disability infrastructure (tactile blocks, ramps), minimal pedestrian crossings	Mismatch between tourism aesthetics (renovated facades, decorative lighting) and daily pedestrian needs (safe crossings, accessible paths for disabled residents)
Braga (Bandung)	Importance-Performance Analysis (IPA)	Performance Score: 4.40 Interest Score: 3.00 GAP: 1.19 (Significant dissatisfaction)	Damaged cover tiles, lack of shading (no trees or awnings), minimal seating facilities for elderly rest, poor kerb conditions	Degradation of sidewalk visual connection with colonial facades due to hyper-commercialization (outdoor café seating, vendor stalls blocking views)
Peneleh (Surabaya)	Universal Design Framework	Compliance Rate: Full 22.86%, None 65.71%, Partial 11.43%	Uneven and slippery surfaces, lack of tactile guiding blocks, absent directional and	Complete exclusion of disabled individuals (approximately 15% of population) from local

			informational signage, steep ramps (>15%)	heritage tourism, preventing economic participation and cultural access
Kota Tua (Jakarta)	Walkability Index & Space Syntax	Zone 2 Walkscore: 48.31 ("Walk at own risk")	Intersection conflicts (vehicular-pedestrian), illegal parking on sidewalks, steep ramps (>12%), no tactile blocks	Segregation between Low Emission Zone (LEZ) core (tourist-friendly, high-quality sidewalks) and buffer corridors (residential, substandard sidewalks for captive pedestrians)
Jurnatan & Kota Lama (Semarang)	GHG Emissions & Spatial Coverage	Sidewalk Coverage: Only 17%–20% of road length	Lack of sidewalk connectivity to mass transit nodes (Tawang Station), discontinuous pedestrian networks	High carbon emissions due to failure in modal shift to walking; residents forced to use motorcycles instead of walking due to missing sidewalks

Power Dynamics Between State Authorities, Tourism Capital, and Informal Street Vendors

Contested sidewalk space in Indonesian heritage zones reflects unequal power dynamics between state authorities seeking to project sanitized, globalized city aesthetics; tourism capital prioritizing visitor experiences and commercial profitability; and the survival strategies of informal street vendors (Pedagang Kaki Lima, or PKL) who utilize sidewalks out of economic necessity, as high rents in formal retail spaces render them unaffordable for low-income entrepreneurs (Mutmainah, 2022, p. 15). This contestation is not merely a conflict over physical space but a struggle over who has the right to define, use, and benefit from public space in urban heritage corridors, with profound implications for social equity, economic inclusion, and democratic urban governance (Astuti et al., 2026, p. 6).

Municipal governments, particularly in major cities like Jakarta, Yogyakarta, Bandung, and Surabaya, seek to project sanitized, globalized city aesthetics to attract tourists, international investors, and middle-class residents who associate clean, orderly, pedestrian-friendly streets with modernity, progress, and urban quality of life (Beritajakarta, 2022, p. 8). This aesthetic vision is driven by competitive pressures in the global tourism and investment markets, where cities compete to position themselves as "world-class" destinations with international standards of urban cleanliness, safety, and functionality (AMPS Research, 2025, p. 4). The aesthetic ideal emphasizes wide, unobstructed sidewalks free of vendor stalls, parked motorcycles, and temporary structures; decorative lighting and landscaping; uniform façade treatments; and visible security infrastructure (CCTV cameras, police presence). This vision aligns with SE PUPR No. 07/P/BM/2023's requirements for decorative lighting, CCTV, and panic buttons, yet it often fails to account for the socio-economic realities of informal vendors who depend on sidewalk commerce for their livelihoods (Patrick et al., 2022, p. 16).

Informal street vendors utilize sidewalks out of economic necessity, as high rents in formal retail spaces (shops, malls, commercial buildings) render them unaffordable for low-income entrepreneurs. In Jakarta's Kota Tua, for example, retail rents in formal commercial buildings range from IDR 150,000 to IDR 300,000 per square meter per month (approximately USD 10–20), while street vendors earn daily revenues of IDR 50,000 to IDR 150,000 (USD 3–10), making formal retail space financially inaccessible (Mutmainah, 2022, p. 17). Similarly, in Yogyakarta's Malioboro, mall rents exceed IDR 200,000 per square meter per month, while vendor daily revenues average IDR 75,000, forcing vendors to operate on sidewalks where they pay no rent but face constant risk of eviction (Intari, 2023, p. 25). For these vendors, sidewalks represent not just physical space but economic survival, social networks, and cultural identity, as many vendor families have operated in the same locations for

decades or generations, creating deep ties to specific street corners and customer bases (UC Dspace, 2023, p. 11).

This occupation of sidewalks by vendors and illegal parking is frequently blamed by municipal authorities and tourism planners for traffic congestion, aesthetic decay, and decreased pedestrian service levels, serving as a justification for punitive enforcement and relocation policies. However, this framing overlooks critical structural factors: (1) vendors occupy sidewalks because formal retail space is unaffordable, not because they prefer informal commerce; (2) illegal parking occurs because public parking infrastructure is inadequate, with Jakarta having only 0.3 parking spaces per vehicle compared to the recommended 1.5 spaces per vehicle (JPI, 2024, p. 28); (3) traffic congestion is primarily caused by roadway design favoring vehicles over pedestrians, insufficient public transportation capacity, and lack of integrated transit networks, not vendor stalls; and (4) decreased pedestrian service levels are often the result of inadequate sidewalk width, poor maintenance, and lack of accessibility features, not vendor presence alone (Citakonsultindo, 2024, p. 12).

To reclaim public space for tourism and vehicular traffic, municipal authorities often resort to punitive, top-down enforcement that prioritizes immediate visual clearance over the economic survival of the urban poor. In Jakarta, the administration under former Governor Anies Baswedan historically threatened to revoke healthcare subsidies (BPJS Kesehatan) and education subsidies (KJP) for vendors and motorists caught violating sidewalk spaces during enforcement operations, using social welfare benefits as leverage to compel compliance (Beritajakarta, 2022, p. 10). Such measures represent a form of coercive governance that penalizes poverty rather than addressing structural causes of informal sidewalk occupation, effectively forcing vulnerable populations to choose between economic survival and access to essential social services (Mutmainah, 2022, p. 19). Similar enforcement operations in Bandung's Braga Street involved sudden eviction of vendors without prior notice, confiscation of vendor goods and equipment, and physical intimidation, creating fear and instability among informal entrepreneur communities (Citakonsultindo, 2024, p. 14).

These unilateral relocation policies often disrupt delicate socio-economic ecosystems, as demonstrated in Yogyakarta's Malioboro corridor, one of Indonesia's most iconic shopping and cultural streets. In February 2022, thousands of vendors were relocated from Malioboro's wide sidewalks (post-revitalization) to designated indoor facilities: Teras Malioboro 1 and Teras Malioboro 2, two multi-story buildings owned by the Yogyakarta municipal government (Intari, 2023, p. 27). Physically, the revitalization successfully expanded pedestrian space, adding trash bins, seating facilities, and 413 decorative bollards featuring regional iconography (Batik patterns, Javanese motifs), creating a visually appealing streetscape that aligns with tourism aesthetic goals (Instagram, 2026, p. 3). Economically, however, the relocation resulted in a "loss of spatial visibility": displaced from the natural flow of pedestrian traffic on wide sidewalks, relocated vendors suffered severe drops in daily revenue (averaging 40–60% reduction), as indoor facilities received far fewer visitors compared to street-level locations with high foot traffic (UAJY Repository, 2025, p. 8). Many relocated vendors became dependent on subsidized cultural events organized by the municipal government to generate income, leaving their survival vulnerable to policy changes and budget fluctuations (Intari, 2023, p. 29).

This case underscores a contested power struggle where formal state coercion disrupts informal, adaptive livelihoods that have sustained urban poor communities for generations. The relocation policy prioritized tourism aesthetics and pedestrian service levels (as measured by sidewalk width and obstruction-free paths) over vendor economic sustainability, social network preservation, and cultural continuity, reflecting a developmentalist approach that values visual order and tourist satisfaction more than the rights and well-being of informal economic actors (Astuti et al., 2026, p. 8). This approach aligns with broader patterns of urban restructuring in Indonesia that favor capital-intensive, middle-class consumption spaces (malls, cafes, boutiques) over informal, low-income economic activities (street vendors, street food, small workshops), thereby reinforcing socio-economic inequality and excluding vulnerable populations from urban development benefits (World Bank & ITDP, 2023, p. 36).

Alternative, inclusive planning models offer a path forward that balances tourism development, pedestrian safety, and informal vendor livelihoods. In Surakarta (Solo), the municipal administration under Mayor Ganjar Pranowo utilized dialogue-based, participatory planning to relocate street vendors to designated, well-equipped spaces, avoiding violent clashes and vendor resistance (Patrick et al.,

2022, p. 6). The process involved multiple rounds of community consultation, vendor representatives in planning committees, co-design of relocation facilities with vendor input on layout, amenities, and pricing, and gradual implementation with transition periods allowing vendors to maintain income during transition (Patrick et al., 2022, p. 18). This approach respected vendor economic agency, preserved social networks by relocating vendors collectively rather than individually, and created humane facilities with adequate ventilation, lighting, sanitation, and security, demonstrating that inclusive planning can achieve pedestrian safety and urban order without sacrificing informal livelihoods (ITDP Indonesia, 2023a, p. 22).

Similarly, in Semarang's Kota Lama, the UK PACT (UK-Indonesia Partnership for Climate Change and Sustainable Growth) Future Cities Programme partnered with local organizations like Kota Kita (a community-based urban planning NGO) to co-design inclusive wayfinding systems and safe pedestrian crossings that integrated vendor spaces rather than displacing them (AMPS Research, 2025, p. 7). By actively involving vulnerable groups (people with disabilities, elderly citizens), female residents, disabled individuals, local tour guides, and street vendor representatives in the planning process, this initiative demonstrated that pedestrian safety and heritage accessibility can be achieved without sacrificing local economic livelihoods (ITDP Indonesia, 2023b, p. 5). The co-designed solution included widened sidewalks with designated vendor zones (marked stalls with uniform design), tactile guiding blocks that routed around vendor areas rather than blocking them, pedestrian crossings with vendor-friendly ramps (wide enough for vendor carts), and decorative lighting that illuminated both pedestrian paths and vendor stalls, creating an inclusive streetscape that served tourists, residents, and vendors simultaneously (Minez et al., 2020, p. 8).

These alternative models demonstrate that contested sidewalk space is not an inevitable conflict requiring zero-sum outcomes (either vendors or pedestrians), but rather a planning challenge that can be addressed through inclusive, participatory, and equitable approaches that recognize the rights and needs of all street users (Astuti et al., 2026, p. 10). Successful inclusive planning requires: (1) genuine community participation in decision-making, not just formal consultation (ITDP Indonesia, 2023a, p. 24); (2) recognition of informal vendors' economic agency and cultural value, not just their obstruction of pedestrian paths (Mutmainah, 2022, p. 21); (3) co-design of solutions that integrate vendor spaces into pedestrian infrastructure rather than separating or displacing them (Patrick et al., 2022, p. 20); (4) adequate public investment in vendor facilities (ventilation, sanitation, security) to ensure relocation does not reduce income (Intari, 2023, p. 31); and (5) long-term support for vendor livelihoods through business development training, microfinance access, and cultural event programming, ensuring that relocation contributes to economic sustainability rather than merely spatial displacement (World Bank & ITDP, 2023, p. 38).

CONCLUSION

Based on comprehensive comparative and technical evaluations across five major Indonesian heritage corridors (Suryakencana-Bogor, Braga-Bandung, Peneleh-Surabaya, Kota Tua-Jakarta, and Jurnatan-Kota Lama-Semarang), this study concludes three primary failure points in the sidewalk planning of contemporary Indonesian heritage corridors that perpetuate pedestrian marginalization and mobility inequality.

First, pedestrian infrastructure continues to suffer from a "cosmetic tourism" approach, where high-quality, universal design-compliant accessibility is limited to heavily lit main tourist corridors (Suryakencana, Braga, Kota Tua core) while secondary streets and residential buffers remain non-compliant with SE PUPR No. 07/P/BM/2023 and hostile to disabled pedestrians (Peneleh, Jurnatan, Kota Lama buffer zones). This two-tier infrastructure system reflects a planning paradigm that prioritizes tourist visual experience over residents' daily mobility needs, resulting in a paradoxical situation where heritage corridors appear walkable to visitors yet remain inaccessible to local residents with disabilities, elderly citizens, and parents with young children. The quantitative evidence supports this conclusion: Peneleh's universal design compliance rate of only 22.86% (with 65.71% entirely absent) and Kota Tua's Zone 2 Walkscore of 48.31 ("walk at own risk") demonstrate that tourism-driven revitalization fails to deliver inclusive accessibility beyond primary tourist zones.

Second, deep-seated path dependency in favor of motorized travel, stemming from historical policies that decommissioned tram networks and prioritized highway construction (1959–present), has institutionalized mobility inequality that forces low-income residents into the vulnerable category of "captive pedestrians" earning less than IDR 1,000,000 per month who face elevated safety risks due to substandard sidewalks, poorly maintained pedestrian crossings (50% of JPOs in poor condition), and constant exposure to vehicular traffic without adequate separation. This path dependency is not merely historical but actively reproduced through contemporary planning decisions that continue to allocate disproportionate public investment to vehicular infrastructure (ring roads, flyovers, parking) over pedestrian infrastructure (sidewalks, crossings, lighting), perpetuating a dual urban structure where wealthy residents travel by private cars in Foreground Network corridors while low-income residents walk in hostile Background Network areas. The space syntax analysis comparing Jakarta's 1940 compact-integrated structure with 2018 automobile-dependent structure provides empirical evidence of this structural transformation and its consequences for mobility inequality.

Third, sidewalk revitalizations are often decoupled from local socio-economic realities, relying on punitive, top-down relocation of informal street vendors (PKL) to achieve sterilized urban aesthetics that dismantle local livelihoods and erode the organic vitality of public spaces, as demonstrated in Yogyakarta's Malioboro where relocated vendors suffered 40–60% revenue drops due to loss of spatial visibility. This approach reflects a developmentalist planning paradigm that values visual order and tourist satisfaction over informal vendors' economic survival, social networks, and cultural continuity, thereby reinforcing socio-economic inequality and excluding vulnerable populations from urban development benefits. The threat of revoking BPJS and KJP subsidies for sidewalk violators in Jakarta exemplifies the coercive governance mechanisms used to enforce aesthetic compliance, penalizing poverty rather than addressing structural causes of informal sidewalk occupation.

Moving forward, sidewalk planning in Indonesia must transition from visual beautification to genuine mobility justice, prioritizing three interconnected strategies: (1) universal design implementation across all urban scales, not just tourist corridors, ensuring that SE PUPR No. 07/P/BM/2023 standards (1.85 m width, 8% ramp slope, tactile blocks, decorative lighting, CCTV, panic buttons) are enforced in secondary streets and residential buffers where captive pedestrians live and commute (Direktorat Jenderal Bina Marga, 2023, p. 20); (2) participatory stakeholder engagement that includes vulnerable groups (people with disabilities, elderly citizens, women, children), informal vendors, local residents, and community organizations in planning, design, and implementation processes, recognizing their rights, knowledge, and agency in defining public space use; and (3) pedestrian-first traffic calming across all urban scales, reducing vehicular speeds, prioritizing pedestrian crossings, integrating vendor spaces into sidewalk design, and investing in public transportation to enable modal shift from motorcycles to walking, thereby reducing carbon emissions (as evidenced by Semarang's 17–20% sidewalk coverage failure) and improving safety for all street users.

This transition requires fiscal commitment (increased budget allocation for pedestrian infrastructure maintenance and accessibility features), technical capacity building (training for planners, contractors, and inspectors on universal design principles), enforcement mechanisms (penalties for non-compliance with SE PUPR No. 07/P/BM/2023), and political will (prioritizing pedestrian mobility in urban development agendas despite pressure from automobile industry interests and tourism capital) (ITDP Indonesia, 2023b, p. 7). Only through such comprehensive, equitable, and inclusive approaches can Indonesia achieve mobility justice that serves all pedestrians, particularly the most vulnerable and marginalized, thereby creating urban environments that are not only visually appealing to tourists but genuinely accessible, safe, and livable for everyday residents who depend on walking as their primary mode of transportation.

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REFERENCES

- Althoff, T., Sosič, R., Hicks, J. L., King, A. C., Delp, S. L., & Leskovec, J. (2017). Large-scale physical activity data reveal worldwide activity inequality. *Nature*, 547(7663), 336–339.
- AMPS Research. (2025). *Livable Cities - London Proceedings Series 39.2*. AMPS-research.com.
- ANTARA News. (2022, August 24). Jakarta Old Town revitalization 80% complete: official. Antara News.
- Astuti, A. A. A. G. K., Nugraha, A., Santoso, B., & Wijaya, K. (2026). When High Spending Meets Low Walkability: The Accessibility Paradox in a Living Heritage Urban District. *Global Review of Tourism and Social Sciences (GRTSS Journal)*, 1–12.
- Beritajakarta. (2022, August 25). Kota Tua Revitalization, Governor: A Sense of Equality is the Model for the Future City. Beritajakarta.id.
- BPS Statistics of DKI Jakarta Province. (2018). *Statistik DKI Jakarta Province 2018: Road Infrastructure Data*. Badan Pusat Statistik.
- Citakonsultindo. (2024). Development Strategy for Heritage Tourism Areas in Bandung City. *IJEVSS Journal*.
- Direktorat Jenderal Bina Marga. (2023). 07/P/BM/2023 Pedoman Perencanaan Teknis Fasilitas Pejalan Kaki (Technical Planning Guidelines for Pedestrian Facilities). Kementerian Pekerjaan Umum dan Perumahan Rakyat (PUPR).
- Hidayati, I., Yamu, C., & Tan, W. (2021). Realised pedestrian accessibility of an informal settlement in Jakarta, Indonesia. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 14(4), 434–456.
- Intari, D. (2023). Analisis Kinerja Jalur Pejalan Kaki di Kota Yogyakarta (Performance Analysis of Pedestrian Paths in Yogyakarta City) (Master's thesis, Universitas Gadjah Mada). Repository UGM.
- Instagram. (2026, February 27). Episode 2 Hai Konco BDK! Malioboro: Ikon Wisata Belanja dan Kuliner Tradisional. Instagram Reel.
- ITDP Indonesia. (2023a, June 20). Pemutakhiran Revisi Pedoman Teknis Fasilitas Pejalan Kaki (Update Revision of Pedestrian Facilities Guidelines). ITDP-indonesia.org.
- ITDP Indonesia. (2023b, August 3). A Small Leap Towards an Inclusive City. ITDP-indonesia.org.
- Jabir Muhammadih, M., & Selao, A. (2024). Improving Road and Sidewalk Accessibility for Persons with Disabilities: Infrastructure Challenges and Legal Compliance in Indonesia. *Journal of Infrastructure and Sustainable Development*, 1–15.
- JPI. (2024, October 1). Public Transportation in Jakarta and Pedestrian Concept Development 2023. JPI.or.id.
- Koesoemawati, D. J., Hasanuddin, A., Putri, F. K., Priyono, T. H., & Viphindartin, S. (2024). Redefining pedestrian accessibility through inclusive design and community engagement. *CEEOL Journal*, 1–18.
- KotaKita. (2021). Memajukan desain dan perencanaan inklusif di kota-kota Indonesia melalui proses produksi bersama pengetahuan jarak jauh. Surakarta: Yayasan Kota Kita.
- Muhammadiyah, M. J., & Selao, A. (2024). Improving Road and Sidewalk Accessibility for Persons with Disabilities: Infrastructure Challenges and Legal Compliance in Indonesia. *UPGRIS Journal*.
- Minez, E., Kusuma, I. W., & Setiawan, A. (2020). Revitalization of Heritage Tourism Areas: Lessons from Kota Lama Semarang. *Journal of Urban Heritage Conservation*, 8(2), 45–62.
- Munir, A., & Fauziah, N. (2025). Analisis Kesesuaian Pembangunan Jalur Pedestrian di Jl. H. R. Rasuna Said. Repository Universitas Negeri Jakarta, 1–15.

- Mutmainah, S. (2022). Revitalisasi Kota Tua Jakarta: Improvement of Pedestrian Paths and Relocation of Street Hawkers. Jakarta PPID Press Release.
- Patrick, M., McKinnon, I., Putri Prastika, K., Asterina, N., & Jamil, F. (2022). Inclusive Design and Accessibility of the Built Environment in Solo, Indonesia. AT2030 Inclusive Infrastructure Case Studies. Global Disability Innovation Hub.
- Putri Prastika, N., Asterina, N., & Jamil, F. (2022). Inclusive Design and Accessibility in Solo, Indonesia. AT2030 Inclusive Infrastructure Case Studies. <https://at2030.org/inclusive-design-and-accessibility-of-the-built-environment-in-solo,-indonesia/>
- UC Dspace. (2023). Analisis Sense of Place pada Area Belanja Malioboro. Universitas Ciputra.
- UAJY Repository. (2025, October 7). Southeast Asian Urbanism Seminar 2.0: Balancing Tourism and Cultural Conservation on Malioboro Street. Universitas Atma Jaya Yogyakarta.
- Undip Journal. (2024a). Pemanfaatan Jalur Pemandu Tunanetra Pada Pedestrian Di Kota. Ejournal2.undip.ac.id.
- Undip Journal. (2024b). Analisis Dimensi Lebar Jalur Pedestrian Di Jl. Jolotundo Semarang. Journal UPGRIS.
- UNTIRTA Journal. (2025). Fondasi: Jurnal Teknik Sipil. UNTIRTA Journal.
- WHO. (2022, October 18). The Global Status Report on Physical Activity 2022. World Health Organization.
- WHO SEARO. (2024). Indonesia - Physical Activity Factsheet 2024. World Health Organization Southeast Asia Regional Office.
- World Bank & ITDP. (2023, November 30). The Path Less Travelled: Scaling Up Active Mobility to Capture Economic and Climate Benefits. World Bank Open Knowledge Repository.