American Journal of Multidisciplinary Research & Development (AJMRD)
*Volume 08, Issue 06 (**June - 2026**), PP 189-202*
ISSN: 2360-821X
www.ajmrd.com

Research Paper **Open Access**

Characteristics of Building Layout, Circulation System, and Connecting Paths Based on Livable and Environmentally Friendly Neighborhood Indicators Case Study: Glodok Area, Jakarta, Indonesia

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ABSTRACT: *This study evaluates the spatial-physical alignment of the Glodok Urban Corridor against Building and Environmental Plan (RTBL) standards, focusing on building forms and pedestrian circulation networks. A comparative evaluation matrix was applied across 16 sub-areas to examine regulatory deviations and their impacts on urban heritage and pedestrian safety. The findings reveal massive, systemic violations of building setbacks within the interior core, driven by organic, self-built structures encroaching upon the public right-of-way and air rights. This encroachment causes severe vertical scale friction and degrades the architectural identity of historic Chinese Pecinan vernacular facades. At the macro scale, the corridor exhibits high transit-oriented development potential. However, micro-connectivity is functionally paralyzed by severe side friction, including illegal on-street parking, logistics conflicts, and total pedestrian displacement by traditional market stalls. Furthermore, the complete absence of segregated walkways and universal design features forces vulnerable users into hazardous shared spaces within narrow alleys. Consequently, this study proposes integrated policy interventions, including incentive zoning for public arcades, time-sharing logistics management, and strict architectural design guidelines to restore pedestrian rights and prevent spatial paralysis.*

Keywords: Architectural identity,Building form,Pedestrian network,Spatial deviation,Transit-oriented development.

I. INTRODUCTION

1.1 Background

Old urban districts frequently exhibit morphological characteristics that develop organically and self-reliantly across generations. While these features create a unique visual character, they simultaneously induce high spatial vulnerability due to imbalances between rapid space demands and environmental infrastructure capacity [1]. According to the Building and Environmental Plan (RTBL) framework, physical building forms should ideally generate integrated, contextual, and adaptive spaces capable of fostering multidimensional synergy among architectural forms, residential settlements, urban functions, and regional identity [2].

To fulfill these standards, several primary building form criteria must be met. Architectural and environmental integration must produce contextual living spaces by positioning the built environment as an adaptive framework [3]. Furthermore, a multidimensional integrative synergy is required to blend architectural and settlement aspects into a functional unity that establishes a robust regional identity [2], [3]. Compliance is measured through indicators such as the integrated orientation of buildings toward public spaces, streets, and block layouts, as well as spatial continuity forming pockets of communal activity [4]. Clear spatial organization—including plot groupings, block shapes, mass configurations, and vertical dimensions—is vital, alongside matching architectural expressions, materials, and styles with local cultural identity, history, and climate. Additionally, functional public features must be integrated within private properties, such as building arcades [2], [5].

Such high-quality integration remains inseparable from the performance of surrounding circulation systems and pedestrian networks. Within urban corridors, circulation systems must center on human behavior and activity while forging close links between public life and environmental sustainability [6]. This requires safe, inclusive, sustainable, and accessible movement infrastructure for all community groups, including pedestrians, the elderly, and people with disabilities [7]. Additionally, successful circulation is measured by reduced dependency on private motorized vehicles and the seamless integration of non-motorized networks with public transit facilities [8].

The core issue addressed in this study is the physical-spatial and structural deviation between theoretical urban regulations and the reality of self-reliant ground development [9], [10]. This multidimensional problem occurs when irregular building forms trigger stagnation, street-capacity conflicts, and functional degradation within the circulation systems of historic corridors [10], [1]. Preliminary research within this specific territory indicates stark variations in spatial layouts. Along the formal macro-corridors of the Glodok Area in Jakarta, compliance with the Building Setback Line (GSB) and Building Frontage Line (GMB) aligns well with municipal regulations, boasting high accessibility due to direct integration with mass public transit lines like Transjakarta or the MRT [11].

However, empirical observations within transitional sub-areas and internal hinterlands of Glodok confirm that building layouts develop organically and partially without clear urban design guidelines [10], [1]. GSB violations occur massively within internal alleys as self-built structures, upper-floor balconies, external iron staircases, permanent canopies, and traditional market stalls encroach upon the public right-of-way. This encroachment disrupts integrated building orientations and severs the spatial continuity of communal spaces. Consequently, due to the loss of inclusive infrastructure, internal circulation operates as an unregulated shared space where dense mixtures of pedestrians and vehicles compete within narrow paved pathways devoid of segregated sidewalks. This environment compromises the safety of pedestrians, students, the elderly, and communal religious activities, failing the indicator for reduced private vehicle dependency.

Therefore, this study evaluates the empirical parameters of building forms—including the Building Coverage Ratio (KDB), GSB, facades, and skylines—while measuring circulation and pedestrian pathway performance against quantitative RTBL metrics. This article provides a comprehensive spatial comparison of old organic urban corridor typologies. By mapping critical areas experiencing extreme spatial degradation, such as traditional market zones and dense hinterlands, this study serves as a technical reference for contextual micro-spatial control for local governments and urban design practitioners.

1.2 Problem Statement

1.2.1 The non-uniformity of building forms—characterized by irregular setbacks, uncontrolled organic mass development, and low compliance with the Building Setback Line (GSB)—degrades the visual identity and aesthetic quality of the historic urban district.

1.2.2 The absence of physically segregated pedestrian pathways (sidewalks) along internal environmental corridors triggers extreme spatial conflicts between pedestrians and motorized vehicles, hindering human-centric circulation infrastructure.

1.2.3 High side friction caused by illegal on-street parking and informal market stalls narrows street clear widths, degrades public space functionality, and increases environmental vulnerability to fire hazards.

1.3 Research Objectives

1.3.1 To evaluate building form characteristics in the Glodok Area based on compliance with structural parameters, specifically the Building Setback Line (GSB), skyline regularity, and regional architectural harmony.

1.3.2 To analyze existing circulation infrastructure, pedestrian facility availability, and side-friction levels that affect micro-mobility safety and comfort.

1.3.3 To synthesize cross-sector spatial deviations against the Building and Environmental Plan (RTBL) parameters to formulate contextual micro-spatial planning guidelines.

1.4 Theoretical Studies

1.4.1 Sustainability Theory

Sustainability theory in architectural and urban environmental design focuses on integrating architecture, settlements, and the environment to foster contextual, long-term living spaces [12]. This concept demands that the built environment remain climatologically adaptive and responsive to specific site characteristics. Material and facade efficiency are realized through the utilization of local materials and regional architectural ornaments that harmonize with local cultural identity and history. Meanwhile, energy efficiency is driven by design parameters of roofing and ventilation systems optimized for tropical climates to minimize artificial energy loads [13]. Within the land-use and spatial dimensions, sustainability is measured through the integrated orientation of buildings toward public spaces, land-plot compliance, and intensity controls—including the Building Coverage Ratio (KDB), uniform Building Setback Lines (GSB), Building Frontage Lines (GMB), and controlled skyline management [2]. Regulating these physical parameters ensures spatial continuity and forms healthy pockets of communal activity. Lastly, the socio-economic dimension requires circulation infrastructure and connecting pathways that secure regional economic operations without sacrificing public space. This parameter encompasses integrating functional public features within private properties, such as mandatory ground-floor pedestrian arcades or colonnade systems beneath commercial buildings, to support local business continuity while ensuring safe mobility access [10], [5].

1.4.2 Regenerative Theory

Regenerative theory in urban environmental design steps beyond merely maintaining existing conditions; instead, it focuses on the active restoration, repair, and revitalization of degraded spatial ecosystems. In the context of building forms, the regenerative approach demands harmony among architectural expressions, materials, and styles with local cultural and historical identities to revive fading regional character. Operationally, this visual restoration is evaluated through building mass compliance with legal plot codes and building height controls to maintain skyline integrity. This control is vital to halting the adverse impacts of uncontrolled self-built structures, which frequently conceal historic facades and damage old urban aesthetics. Within the circulation and connecting pathway dimension, regenerative theory acts as an instrument to restore public street spaces degraded by side friction [14]. This approach emphasizes restoring safe, functional, and unobstructed street widths from spatial encroachments, such as encroaching organic structures, permanent canopies, external iron staircases, illegal parking, and informal market stalls. Furthermore, this regenerative concept is measured through the availability of eco-friendly circulation facilities—including non-motorized infrastructure, such as dedicated bicycle lanes, and secure bicycle parking at primary transit nodes. Consequently, the circulation system is not only optimized for efficiency but is also regenerated as a safe environment for social interaction that minimizes negative ecological impacts [15], [6].

1.4.3 Livability Theory

Livability theory in urban environmental design emphasizes creating physical spaces that guarantee safety, comfort, health, and security for all community members. Within circulation systems and connecting pathways, livability is rigidly measured by the availability of inclusive movement infrastructure for pedestrians and vulnerable groups, including the elderly and people with disabilities [6], [15]. Operationally, walkability is assessed based on pedestrian clear widths of at least 1.5 to 2.0 meters, which must remain completely unobstructed. Additionally, accessibility for disabled groups must be fulfilled through tactile paving (*guiding blocks*) and dedicated ramps with a gentle slope under 7 degrees. Macro-indicators of livability require reduced private vehicle dependency, supported by short, safe, and continuous walking distances—ranging between 400 and 800 meters—from residential sectors to mass public transit facilities [16]. In terms of building form, fulfilling livability correlates with how building masses respond to surrounding public spaces to humanize the environment. This is realized through integrated building frontage orientations, organizational clarity of blocks and mass configurations, and continuous spaces that serve as pockets of communal activity. Physical livability also demands rigid enforcement of GSB and GMB regulations to prevent the narrowing of air and street corridors by self-built structures, thereby preserving clear widths to protect against safety hazards while ensuring natural lighting and tropical ventilation [2], [3].

1.4.4 Neighborhood Theory

Neighborhood theory views a micro-urban area as a unified community unit where architectural elements and environmental infrastructure synergize to foster functional integration and strengthen district identity. Within the building form dimension, this theory requires organizational clarity of physical environmental elements—including plot groupings, block shapes, mass configurations, and vertical dimensions [17], [15]. Ideal settlement characteristics are evaluated by the capacity of building clusters to maintain spatial continuity, forming safe pockets for communal activities. Operationally, physical identity is secured through uniform GSB and GMB lines, land-plot compliance, and controlled composite skyline configurations to avoid extreme vertical scale contrasts within a single neighborhood unit [4]. Within the circulation and connecting pathway dimension, neighborhood theory emphasizes robust internal connectivity linking residential areas with local public facilities and macro-transportation networks. Infrastructure must center on human behavior by providing continuous connecting pathways for daily activities. Parametrically, environmental street networks must meet standard requirements, including a minimum unobstructed sidewalk width of 1.5 to 2.0 meters, tactile guiding blocks, and disabled ramps with slopes under 7 degrees. Furthermore, neighborhood integration is measured by short, inclusive walking distances—within a 400 to 800-meter radius—from residential blocks toward shared communal facilities and mass transit nodes under Transit-Oriented Development (TOD) principles [17].

II. RESEARCH METHODS

This study employs a descriptive-quantitative method to evaluate and compare the ideal numerical and parametric standards of the Building and Environmental Plan (RTBL) against the physical dimensions of the built environment [2]. All data are derived strictly from internal secondary sources within the Physical Component Matrix Document of the Jakarta Glodok Area RTBL, encompassing detailed spatial and statistical records across Sectors 1 through 16. Data collection was conducted via a document-based parameter inventory, followed by a descriptive-comparative quantitative analysis to calculate and map precise degrees of spatial deviation on-site.

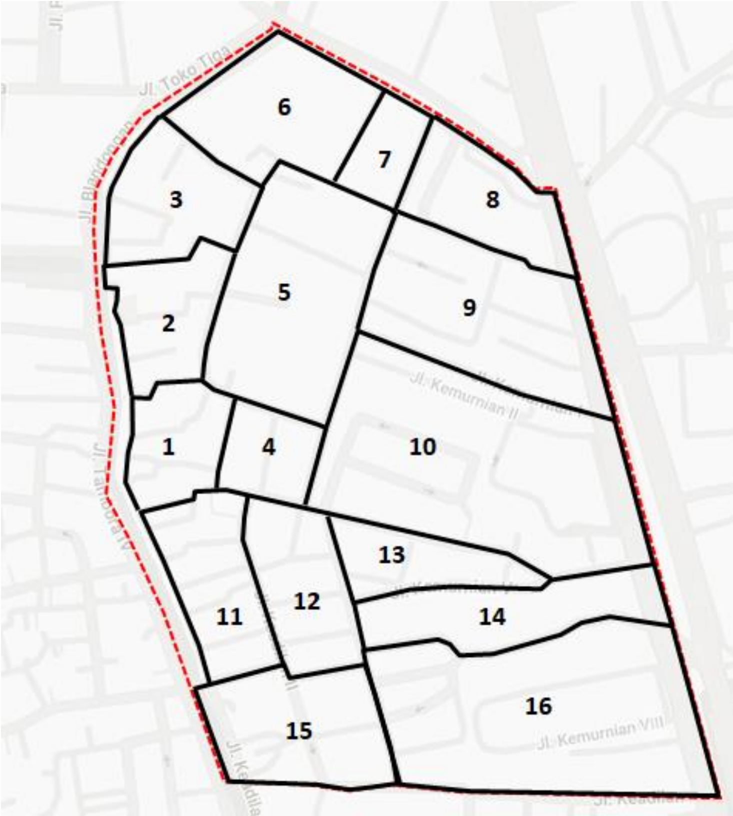

Fig 1. Mapping of the research location in the glodok area, jakarta
source : google mapa,2026

To quantitatively evaluate the Building Form component, the analysis used Site Plan and Urban Massing Model instruments to transform physical layouts into measurable datasets. These criteria were operationalized into five indicators tested through explicit physical and dimensional parameters. The first indicator is the integrated orientation of buildings toward public spaces, streets, and environmental block layouts. This was assessed based on the uniformity of the Building Setback Line (GSB) and Building Frontage Line (GMB) along street corridors, alongside plot boundary compliance rates. GSB and GMB parameters were verified through Ground Floor Plans to numerically detect structural encroachments by self-built balconies, iron staircases, and canopies. The second indicator evaluates the continuity of space between buildings forming pockets of communal activity, tested through the minimum availability of at least one shared open space or common courtyard anchoring a residential block cluster. The third indicator examines the structural clarity of physical environmental elements—encompassing plot groupings, block shapes, mass configurations, and vertical dimensions—measured through building height regulations and composite skyline configurations. The fourth indicator assesses the harmony of architectural expression, materials, and styles with local cultural identity, history, and climate. This indicator used Architectural Design Guidelines and Historical Contextual Assessment Documents to measure facade designs, regional ornamentation, and tropical roofing or ventilation adaptation thresholds. The fifth indicator evaluates the availability of functional public features within private properties, measured through strict zoning parameters regarding mandatory public arcade or colonnade dimensions on commercial ground floors.

For the Circulation System and Connecting Pathway component, the analysis evaluated human mobility and environmental sustainability criteria, broken down into three primary indicators. The first indicator is the availability of safe, inclusive, sustainable, and accessible movement infrastructure for all community groups. This was evaluated using Pedestrian Pathway Network Maps and Street Section Maps to mathematically measure spatial capacity and detect side friction caused by illegal parking and market stall encroachments, anchored by a minimum pedestrian clear width threshold of 1.5 to 2.0 meters [18]. Inclusivity performance was verified using Detail Engineering Design (DED) documents and Accessibility Technical Standards to test tactile paving (*guiding blocks*) and dedicated ramps with slopes under 7 degrees. The second indicator is the reduction of public dependency on private motorized vehicles, assessed through the availability of dedicated bike lanes and safe bicycle parking capacities at transit points. The third indicator examines the integration of non-motorized networks with public transit facilities. This was analyzed through Modal Integration Maps using GIS-based Catchment Area Analysis to ensure that walking distances from residential blocks to transit nodes strictly fulfill the ideal Transit-Oriented Development (TOD) threshold of a 400 to 800-meter radius [19].

III. Results and Discussion

The analysis of the results and discussion in this chapter is presented comparatively by confronting the existing physical conditions of the 16 sub-areas of Glodok against the ideal parameters of the Building and Environmental Plan (RTBL) and urban design elements. To produce an objective evaluation, the assessment is rigidly separated into two primary domains: building form performance and the operational execution of the circulation system and connecting pathways.

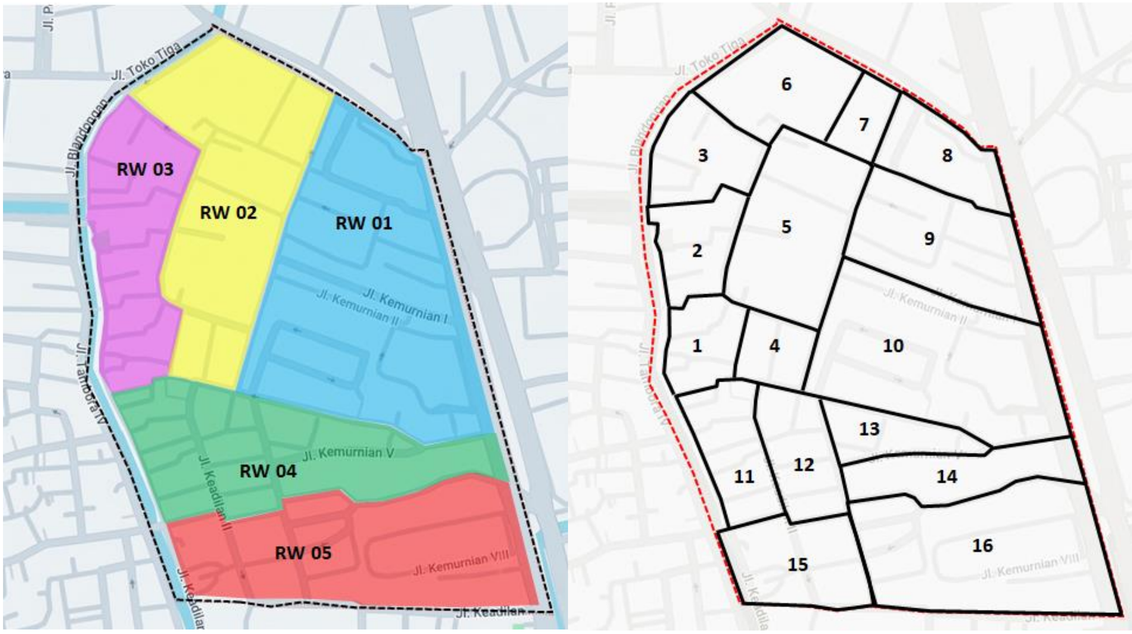

Fig 2. research location, glodok area, jakarta
source : google mapa,2026

The sixteen observed sub-areas are not assessed as a single homogeneous entity; instead, they are dissected based on their developmental typologies, which are broadly divided into two contrasting spatial characters. First, the formal macro-corridors (such as Sectors 8 and 10) are planned with modern frameworks and integrated into the city's primary infrastructure. Second, the organic internal areas or *hinterlands* (such as Sectors 6, 9, 11, 14, 15, and 16) have grown self-reliantly from the historical trading activities of the vernacular Chinese *pecinan*. All field parametric data extracted from the reference matrix documents are subsequently converted into a linear performance ranking, ranging from rank 1 (Very Good) to rank 16 (Very Poor). The determination of building form rankings is based on the dimensional degree of mass compliance with legal plots, the uniformity of Building Setback Lines (GSB), and the visual harmony of facades and skylines. Meanwhile, circulation rankings are determined by movement flow efficiency, the minimization of side friction values (such as illegal parking and market stall encroachments), and the availability of human-centric pedestrian infrastructure within the transit catchment radius. Through this standardized quantitative assessment, the distribution of micro-spatial deviations in each block can be mapped precisely to identify critical hotspots experiencing the most severe spatial pressures.

3.1 Evaluation of Building Form Components

Table 1: land use tabulation

Indicator	Parameter	Area Description	Area Assessment
Integrated Orientation of Buildings Toward Public Spaces, Streets, and Environmental Block Layouts [20]	The physical-spatial evaluation of building forms begins with the parameter of uniform Building Setback Lines (GSB) and Building Frontage Lines (GMB) along street corridors [2].	Sectors 1, 2, and 3: The building configurations exhibit an organic, irregular, and non-uniform pattern. There are high dimensional variations in mass shapes, orientations, and setback distances that adapt randomly to the existing network of streets and alleys rather than conforming to formal regulatory lines.	Bad
		Sector 6: Along the macro-scale primary corridor of Pancoran Street, the building frontage appears continuous, dense, and physically cohesive. However, deeper within the internal residential alleys, the building mass layout transitions into a highly irregular pattern due to uncontrolled, self-reliant (*swadaya*) housing construction over generations.	Very Poor
		Sector 8: This zone complies fully with formal macro-modern planning frameworks. It features highly regularized building setbacks and standardized frontage lines for both commercial shop-houses (*ruko*) and large-scale public complexes (Pasar Jaya) facing the primary arterial road.	Good
		Sectors 11 and 15: Characterized by predominantly organic and irregular layout patterns, the physical building facades in these sectors numerically encroach forward beyond legal property lines, directly consuming public right-of-way street space.	Very Bad

Indicator	Parameter	Area Description	Area Assessment
Continuity of Space Between Buildings Forming Pockets of Communal Activity [4]	Availability of a minimum of one shared open space or common courtyard that structurally anchors a cluster of residential blocks [4].	Sector 16: This sub-area features a prominent cultural heritage site of classical Chinese architecture (Candra Naya) that exhibits highly adaptive spatial qualities, successfully preserving its historic internal courtyard and central garden spaces.	Good
Clarity in Organizing the Physical Elements Shaping the Environment [13]	Controlled building height regulations and composite skyline configurations [13].	Sector 4: Composed of low- to mid-rise building blocks (2–3 stories) featuring old, dense, and tightly clustered organic/classical urban shop-house typologies.	Fair
		Sectors 7 and 14: Exhibit a sharp vertical scale contrast between the high, massive modern walls of institutional school buildings (Kemurnian and Gepembri) and the surrounding rows of 1- to 3-story self-built residential settlements.	Bad
		Sector 10: Dominated by modern high-rise and mid-rise structures that systematically implement regulatory building clearances and integrate distinct podium structural designs.	Good
Harmony of Architectural Expression, Materials, and Building Styles with Local Cultural Identity, History, and Climatic Characteristics	Building facade design utilizing local materials or applying distinct regional architectural ornamentation	Sector 5**:** Functional conversions into commercial spaces have led to fragmented and diverse facade appearances, dominated by the addition of commercial signage, canopies, and retail elements without any clear municipal visual guidelines.	Bad

Indicator	Parameter	Area Description	Area Assessment
[14]		Sector 9: Features old, commercial shop-house styles characteristic of the historical vernacular Chinese *pecinan*; however, the original architectural facades are heavily concealed by the installation of fabric canopies, tarpaulins, and a dense accumulation of informal business signage.	Very Bad
		Sector 12: Dominated by commercial-functional building typologies (3- to 4-story shop-houses/warehouses) where the front facade designs are oriented entirely toward supporting logistics and loading dock activities.	Bad
Availability of Functional Public Features Within Private Properties [15]	Mandatory provision of public arcade or colonnade systems on the ground floors of commercial buildings or integrated residential developments [15].	Sectors 6 and 11: Numerous property owners have extended their upper-floor structures (balconies), installed permanent canopies, and attached external iron staircases that protrude into the public right-of-way air rights above the alleys, thereby obstructing and closing off the pedestrian circulation space beneath the buildings.	Very Bad

3.2 Evaluation of Circulation System and Pedestrian Components

Table 2 : circulation system and pedestrian components tabulation

Indicator	Parameter	Area Description	Area Assessment
Availability of Safe, Inclusive, Sustainable, and Friendly Movement Infrastructure for Pedestrians, the Elderly, and People with Disabilities [21]	Pedestrian pathways must maintain a minimum clear width of 1.5 to 2 meters, completely free of obstructions [22].	Sectors 1 and 2: Internal environmental streets are relatively narrow, and significant portions of the street bodies are utilized for vehicle parking, social activities, and informal economic operations by local residents.	Bad
		Sector 6: Neither the primary corridors nor the internal alleys feature dedicated sidewalks that are physically segregated from motorized traffic, forcing pedestrians to mingle directly with motorcycles and cars in an unregulated shared space.	Very Bad

Indicator	Parameter	Area Description	Area Assessment
		Sector 9: The spatial rights of pedestrians are entirely compromised and totally occupied by wet-market stalls belonging to traditional vendors along the corridor, triggering the most extreme spatial conflict within the study area.	Very Bad
Availability of Safe, Inclusive, Sustainable, and Friendly Movement Infrastructure for Pedestrians, the Elderly, and People with Disabilities [21]	Availability of tactile paving infrastructure (*guiding blocks*) and dedicated ramps for the disabled with a strict standard slope threshold of less than 7° [14].	Sectors 7 and 14: The primary access corridors leading toward the educational facility (Kemurnian School) completely lack physically segregated sidewalks, as well as universal accessibility features designed for the elderly and school-aged children.	Very Bad
		Sector 16: The internal street networks (Kemurnian VI–IX Streets) completely lack both segregated pedestrian pathways and tactile paving (*guiding block*) infrastructure for people with disabilities.	Very Bad
Reduction in community dependency on private motorized vehicles for daily mobility [22].	Provision of dedicated bicycle lanes and secure bicycle parking facilities at transit points [13].	Sector 4: Internal access relies on a network of narrow alleys (hinterland), where primary circulation is prioritized exclusively for pedestrians and two-wheeled vehicles without any dedicated separators for bicycle lanes.	Fair
		Sectors 5, 11, and 15: The geometric design of the environmental streets is highly constrained, maintaining a narrow effective width of only 1.5 to 3.5 meters. Consequently, the street space is heavily congested by a high intensity of informal, on-street motorcycle parking situated directly in front of residential and commercial shop-house facades.	Very Bad

Indicator	Parameter	Area Description	Area Assessment
		Sectors 12 and 13: Environmental streets are heavily impacted by localized traffic bottlenecks and congestion, primarily triggered by unregulated on-street parking and the frequent maneuvering of delivery box cars and mini single-axle trucks executing loading and unloading activities.	Bad
Integration of non-motorized transport networks with public transit facilities [6].	Walking distance between residential blocks and transit stations/stops is within a threshold of less than 400 to 800 meters, adhering to Transit-Oriented Development (TOD) principles [23].	Sector 8: Functions as a macro-circulation node directly adjacent to a primary arterial road and is seamlessly supported by mass transit infrastructure, including a Transjakarta Busway Station and MRT access. However, the interconnecting pedestrian sidewalks suffer from severe degradation due to illegal parking encroachment and commercial shop-house logistics activities.	Fair
		Sector 10: Characterized by exceptionally high accessibility, maintaining a direct physical connection to Gajah Mada Street and achieving optimal, direct integration with the Transjakarta transit corridor.	Very Bad

3.3 Comparative Synthesis and Key Findings of the Glodok Urban Corridor

3.3.1 Synthesis of Building Form and Massing Characteristics

A comparative analysis of the building form and massing characteristics across the 16 selected sub-sectors reveals deep spatial fragmentation and a sharp structural dualism within the Glodok Urban Corridor. The physical fabric of the city is divided into two contrasting typologies: a formal-modern structure regulated by macro-planning systems, and organic-informal vernacular settlements that have grown spontaneously over time [24].

Fig 3. building layout conditions in the glodok area, Jakarta, Indonesia
source : google mapa,2026

1) Building Setback Deviations (GSB/GMB): Strict and high compliance with building setback regulations is rigidly limited to sub-sectors directly adjacent to primary arterial corridors, most notably Sector 8 (which encompasses modern, large-scale blocks such as Pasar Jaya Glodok) and Sector 10. These areas exhibit organized building clearance distances and controlled podium alignment. Conversely, massive, systemic violations of the Building Setback Line (GSB) and Building Frontage Line (GMB) serve as the defining characteristics of the interior core [25]. In Sectors 1, 2, and 3, structures have grown organically without standardized lot boundaries or visual orientation. This spatial compromise reaches a critical threshold in Sectors 6, 11, and 15, where self-built residential and commercial structures horizontally extend upper-floor structures (balconies), permanent canopies, and external iron staircases to the extent of encroaching upon the public right-of-way within narrow alleys, thereby constricting public air rights and blocking natural light penetration.

2) Vertical Scale Friction and Architectural Identity: The skyline composition experiences sharp friction regarding vertical scale. While Sector 4 manages to maintain a relatively uniform and intact low-to-medium-rise building profile (2–3 stories) dominated by tightly packed, organic urban shop-house typologies, Sectors 7 and 14 exhibit extreme architectural polarization. In these sectors, massive, high-rise, and insular modern institutional building blocks (such as the Kemurnian School and Gepembri complexes) stand in stark visual contrast to the low-rise local settlements (1–3 stories) that hem in their perimeter walls. Furthermore, the authentic architectural identity is undergoing rapid visual degradation. The facades of historic Chinese vernacular shop-houses in Sector 9 are almost entirely obscured and hidden by dense, chaotic commercial signage, temporary tarpaulins, and other informal business attributes [26]. A similar shift has occurred in Sector 12, which has completely abandoned regional aesthetics in favor of purely functional, unornamented warehouse facades engineered specifically for logistics loading and unloading activities.

3) Enclosure of Communal Spaces: The continuity of public space within private property boundaries is at a highly critical level. Although Sector 16 successfully preserves a highly adaptive and climate-responsive interior courtyard within the historic Candra Naya heritage complex, this stands as an isolated anomaly [27]. The surrounding environment displays profound spatial polarization, wherein this valuable cultural heritage site is enclosed, hidden, and trapped by massive, high-rise superblocks constructed directly along its site boundaries, thereby severing its seamless integration with the broader public realm [28].

3.3.2 Synthesis of Circulation System and Pedestrian Network Characteristics

An evaluation of the circulation network highlights a fundamental misalignment between vehicle-centric infrastructure and human-centered design principles within a dense, historic urban core. The entire corridor experiences high local side friction, spatial paralysis, and a critical loss of safe spaces dedicated to non-motorized transportation.

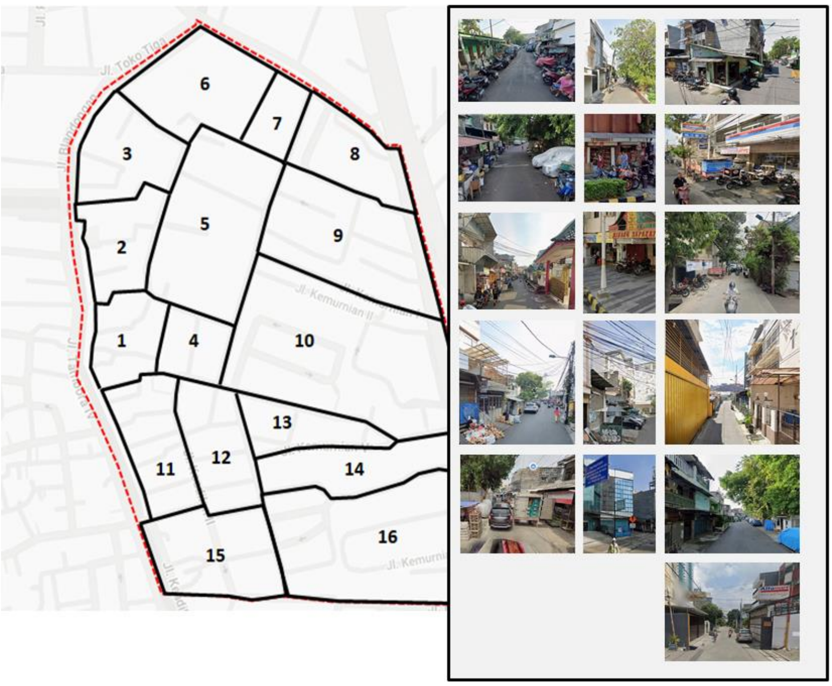

Fig 4 . Condition of circulation and pedestrian systems in the glodok area, Jakarta, indonesia source : google mapa,2026

1) Pedestrian Space Deprivation and Shared Space Vulnerability: Human-centered design is virtually non-existent across the entire internal network [15]. In Sector 6, the primary corridor of Pancoran Street operates as a highly congested, unregulated shared space where pedestrians, moving motorcycles, private vehicles, and informal commercial loading and unloading activities actively contest the same asphalt surface. Within the inner hinterland areas specifically Sectors 1, 2, 11, and 15 the physical street geometry is highly constrained, with path widths limited to a mere 1.5 to 3.5 meters. Several bottlenecks are so narrow that they can only accommodate one motorcycle at a time, yet these pathways remain severely obstructed by chaotic on-street motorcycle parking and the encroachment of residential domestic activities. The most severe degradation of pedestrian infrastructure occurs in Sector 100, where the public right-of-way for pedestrians is 100% occupied and physically overtaken by traditional wet market vendor stalls, triggering the total displacement of pedestrians and comprehensive spatial paralysis.

2) Universal Accessibility and Vulnerable User Risks: Universal design infrastructure, such as tactile paving (*guiding blocks*) and accessible ramps for people with disabilities or the elderly, is completely absent throughout the internal corridors [29]. This deficit creates acute safety risks within high-density civic zones [30]. In Sectors 7 and 14 (the primary institutional school sectors), the lack of physically segregated pedestrian pathways forces school children, parents, and the elderly to walk directly amidst chaotic traffic streams generated by private vehicle pick-up and drop-off activities during peak hours. A parallel issue is identified in Sector 16 (Kemurnian VI–IX Streets), where the internal pathways lack any physical separation between pedestrians and vehicles, leaving vulnerable road users completely exposed to high-frequency motorcycle movements.

3) Transit Integration and Non-Motorized Transport Barriers: From a macro-planning perspective, Sectors 8 and 10 exhibit optimal Transit-Oriented Development (TOD) potential due to their direct spatial connectivity to Gajah Mada Street, the Transjakarta mass transit corridors, and the catchment areas of future MRT stations. However, this regional accessibility is severely degraded at the micro-level. The interconnecting sidewalks in Sector 8 suffer from profound functional degradation due to continuous encroachment by illegal motorcycle parking, street vendors, and commercial shop-house logistics. Furthermore, dedicated non-motorized transport corridors (bicycle lanes) are impossible to implement in Sectors 4, 5, 11, 12, 13, and 15 due to restricted street geometry, logistical box truck loading and unloading operations, and uncontrolled on-street illegal parking, effectively blocking opportunities for sustainable transit network modernization.

IV. CONCLUSION

In general, the series of spatial evaluations and comparative analyses across the 16 sub-areas of the Glodok Urban Corridor lead to a comprehensive conclusion that this area is undergoing severe spatial fragmentation. This is driven by an acute mismatch between the Building and Environmental Plan (RTBL) regulations and the reality of organic development on the ground. Within the building form domain, systemic deviations from the Building Setback Line (GSB) and Building Frontage Line (GMB) have crossed ideal thresholds throughout the interior core (*hinterland*). In these sectors, the horizontal physical expansion of self-built structures such as balconies, permanent canopies, and external staircases has encroached upon public air rights and blocked the corridor's natural daylighting. This structural failure is further exacerbated by sharp visual polarization between the massive walls of modern institutional complexes and the surrounding low-rise settlements, as well as the degradation of the historic Chinese pecinan vernacular architectural identity, which is increasingly submerged under a chaotic array of informal commercial signage and high-rise superblocks.

Parallel to this building morphology crisis, the circulation system and pedestrian network domains within the corridor completely fail to implement human-centered design principles. There is a stark, unequal division in infrastructure quality: at the macro scale, the area possesses optimal accessibility and Transit-Oriented Development (TOD) potential due to its direct connectivity to the Transjakarta mass transit and MRT lines. At the micro scale, however, this connectivity is completely paralyzed by high side friction. The community's right to walk is severely deprived by illegal vehicular parking, unscheduled commercial loading dock activities, and the 100% reallocation of public street space into traditional wet market stalls. The most fatal consequence of the absence of segregated pedestrian infrastructure and universal accessibility features (*guiding blocks*) is the transformation of narrow internal alleys into hazardous shared spaces. This layout highly threatens the physical safety of commuters, particularly vulnerable groups such as school children, the elderly, and people with disabilities. As a unified narrative, the Glodok Urban Corridor demands integrated policy interventions through the restructuring of incentive-disincentive building zoning, time-restrictions on commercial logistics, the restoration of pedestrian rights at transit nodes, and the strict enforcement of architectural design guidelines to rescue public spaces and the historical value of the pecinan cultural heritage from prolonged spatial paralysis.

REFERENCES

[1] R. Refranisa, "Morphology of the Chinatown Area in Magelang City," *Jurnal Arsitektur ARCADE*, vol. 4, no. 3, pp. 225–230, 2020.

[2] Ministry of Public Works of the Republic of Indonesia, "Regulation of the Minister of Public Works Number 06/PRT/M/2007 concerning General Guidelines for Building and Environmental Spatial Plans (RTBL)," *PermenPUPR06*, vol. 6, no. 1, pp. 1-3, 2017.

[3] Directorate General of Human Settlements, "Technical Guidelines for Formulating Building and Environmental Spatial Plans (RTBL) Jakarta," *Ministry of PUPR*, vol. 6, pp. 1-60, 2007.

[4] B. Hillier and J. Hanson, *The Social Logic of Space*, Cambridge: Cambridge University Press, 1984.

[5] F. S. and S. P. C. Alverina, "Commercial Street Development for Pedestrians within the Street Corridor Space of the Jakarta Old Town (Kota Tua)," *Jurnal Strategi Desain dan Inovasi Sosial*, vol. 2, no. 1, pp. 81-86, 2021.

[6] Jan Gehl, *Cities for People*, Washington DC: Island Press, 2010.

[7] A. S. Annasa and A. A. Pamurti, "A Study on the Quality and Service Level of Pedestrian Paths," *Indonesian Journal of Spatial Planning*, vol. 4, no. 1, pp. 3-8, 2023.

[8] R. Cervero, "Transit-Oriented Development in the United States," *Transportation Research Board*, 2004.

[9] A. D. S. and Ikaputra, "Morphology of the Kampung Pekojan Area in Semarang," *Jurnal Arsitektur ALUR*, vol. 4, no. 2, pp. 73–81, 2021.

[10] A. G. Therik and J. M. J. P. Santoso, "Weaving Culture and Commerce in Glodok Chinatown Through a Placemaking Approach," *Jurnal STUPA*, vol. 6, no. 2, pp. 1657-1658, 2024.

[11] A. W. P. and L. P. F. Firdaus, "Revitalization of the Jakarta Old Town (Kota Tua) Area using an Alternative TOD Concept," *PURWARUPA Jurnal Arsitektur*, vol. 2, no. 1, pp. 35-44, 2018.

[12] A. W. Purwantiasning and S. Bahri, "The Possibility to Enhance the Quality of Built Environment by Densifying, Mixing and Compacting the Historical Area of Kota Tua Jakarta," *Jurnal Permukiman*, vol. 18, pp. 36–44, 2023.

[13] B. M. Thania and A. W. Purwantiasning, "A Study of Contextual Architecture Concepts on Buildings in the Jakarta Old Town (Kota Tua) Area," *MARKA (Media Arsitektur dan Kota)*, vol. 4, no. 1, pp. 1-16, 2020.

[14] Setiawan, "Preservation, Conservation, and Renovation of the Jakarta Old Town (Kota Tua) Area," *Humaniora: Journal of Indonesian Culture and Society*, vol. 1, no. 2, pp. 699–704, 2010.

[15] M. Carmona, T. Heath, T. Oc, and S. Tiesdell, *Public Places Urban Spaces*, Oxford: Architectural Press, 2010.

[16] L. Suminar and L. Kusumaningrum, "Application of Walkability Principles of Pedestrian Path in Supporting the Green City Concept (Case of Parasamya Street Corridor, Sleman Regency)," *INERSIA*, vol. 18, no. 2, pp. 123-130, 2022.
[17] Leonardo and D. Ratnaningrum, "Chinese Community Spaces in Glodok," *Jurnal STUPA*, vol. 2, no. 2, pp. 1847-1858, 2020.
[18] R. Southworth, "Designing the Walkable City," *Journal of Urban Planning and Development*, vol. 131, no. 4, pp. 256-257, 2005.
[19] R. Cervero and K. Kockelman, "Travel Demand and the 3Ds: Density, Diversity and Design," *Transportation Research Part D*, vol. 2, no. 3, pp. 199-219, 1997.
[20] Ministry of PUPR of the Republic of Indonesia, "Circular Letter of the Minister of PUPR Number 02/SE/M/2018 concerning Technical Planning of Pedestrian Facilities. Jakarta," *SE Menteri PUPR*, vol. 7, pp. 1-4, 2018.
[21] R. D. A. B. F. and A. A. S. N. Putriana, "Analysis of Walking Permeability, Walking Effort, and Walkability Index: A Case Study of Braga Street, Bandung," *Jurnal Teknik Sipil ITB*, vol. 31, no. 2, pp. 202-205, 2024.
[22] A. M. Mulyadi and W. Santosa, "The Importance Level and Quality of Pedestrian Facilities and Their Correlation with Walkability in the Transit-Oriented Development Area of Jakarta," *Jurnal HPJI*, vol. 8, no. 1, pp. 27-38, 2022.
[23] D. P. Putra, H. S. Hasibuan, and B. M. Djaja, "Enhancing Walkability in Jakarta's Transit Oriented Development (TOD): A Pathway to Optimizing First- and Last-Mile Mobility," *Jurnal Pembangunan Wilayah dan Kota*, vol. 21, no. 4, pp. 481-497, 2025.
[24] Sharen and B. A. Sukada, "Revitalization of Glodok as a Socialization Space for the Chinese Community," *Jurnal STUPA*, vol. 2, no. 2, pp. 2177-2186, 2020.
[25] A. A. Nur and M. Ischak, "Typomorphology of Shophouse Facades along a Section of Kemenangan Tiga Street, Glodok Village, West Jakarta," *Jurnal Teknologi dan Desain*, vol. 1, no. 2, pp. 1-14, 2025.
[26] A. Nabilah and T. Setiawan, "Revitalization of Glodok Chinatown," *Jurnal STUPA*, vol. 5, no. 1, pp. 227-238, 2023.
[27] A. Sulistyo, "Tourism in the Chinatown Area of Jakarta Old Town (Kota Tua): An Overview of Urban Tourism Development Potential in Indonesia," *Populis: Jurnal Sosial dan Humaniora*, vol. 4, no. 1, pp. 78-88, 2019.
[28] Elysia and R. Trisno, "Application of Contextual and Third Place Approaches in Designing Public Spaces for Pancoran Chinatown, Glodok," *Jurnal STUPA*, vol. 4, no. 2, pp. 675-686, 2022.
[29] D. M. R. Napitupulu and I. Rudiarto, "The Impact of Transit Oriented Development on Walkability: A Case Study of Dukuh Atas Station, Jakarta," *Jurnal Pembangunan Wilayah dan Kota*, vol. 21, no. 1, pp. 113-129, 2025.
[30] J. Josephine and P. E. Ariaji, "Application of Regenerative Approaches and Everyday Urbanism for the Redesign of Pasar Jaya Glodok, West Jakarta," *Jurnal STUPA*, vol. 7, no. 2, pp. 741-754, 2025.
[31] Kevin Lynch, *The Image of the City*, Cambridge: The MIT Press, 1964.
[32] P. A. B., I. G. O. S. P., and L. J. T. H. Zulfiah, "Calculating the Walkability Level in the Sudirman Integrated Area Using the IPEN Project Method," *Jurnal STUPA*, vol. 5, no. 2, pp. 1853-1866, 2023.
[33] V. Mandasari, "Generating Walkability Concept for Basuki Rahmat Corridor: A Content Analysis," *Journal of Placemaking and Streetscape Design*, vol. 1, no. 1, pp. 19-43, 2023.
[34] Directorate General of Highways, "Procedures for Planning Pedestrian Facilities in Urban Areas No. 011/T/Bt/1995," *SE Menteri PUPR*, vol. 2, no. 1, pp. 1-36, Jakarta, 2018.
[35] H. S. Hasibuan and M. Mulyani, "Transit-Oriented Development: Towards Achieving Sustainable," *Sustainability*, vol. 14, no. 9, p. 5244, 2022.
[36] V. Wijaya and M. V. Gandha, "[RE]Imagining Glodok Through Ecology," *Jurnal STUPA*, vol. 3, no. 2, pp. 1861-1874, 2021.
[37] M. M. Luckman, R. Hanggara, and P. S. Pradini, "Application of Urban Design Principles According to Hamid Shirvani in Evaluating the Spatial Planning and Urban Quality of the West Jakarta Old Town Area," *Jurnal Pendidikan Tambusai*, vol. 9, no. 2, pp. 25154-25161, 2025.
[38] Ganadhi, V. I., and Prabantoro, G, "Transformation of Heritage and Transit-Oriented Development-Based Mixed-Use Property Marketing Strategies: A Case Study of Pancoran Chinatown Point Glodok," *Jurnal Pendidikan Tambusai*, vol. 10, no. 1, pp. 5029-5035, 2026.
[39] M. Fakhriza and I. S. Darwin, "Factors Influencing Pedestrian Comfort Levels on Otto Iskandardinata Street, Bandung," *Jurnal Riset Perencanaan Wilayah dan Kota*, vol. 3, no. 2, pp. 91-96, 2022.
[40] D. S. Mahendra and M. V. Gandha, "Historicist Architecture and Building Conservation of Literae Structure in Jakarta Old Town," *Jurnal STUPA*, vol. 4, no. 2, pp. 807-820, 2023.