Working Paper 2026.1.1.5

- Vol. 1, No. 1

KHẮC PHỤC CÁC VẤN ĐỀ TRONG QUÁ TRÌNH TRIỂN KHAI MÔ HÌNH PHÁT TRIỂN ĐÔ THỊ THEO ĐỊNH HƯỚNG PHÁT TRIỂN GIAO THÔNG CÔNG CỘNG TẠI HÀ NỘI: BÀI HỌC TỪ JAKARTA

Nguyễn Thị Ngọc Linh[1], Đoàn Phương Linh, Nguyễn Quỳnh Anh, Nguyễn Kim Chi, Đầu Quý Khang,

Sinh viên K62 ĐHNNQT Logistics và Quản lý chuỗi cung ứng – Viện Kinh tế & Kinh doanh quốc tế

Trường Đại học Ngoại thương, Hà Nội, Việt Nam

Nguyễn Quỳnh Trang,

Sinh viên K62 Chất lượng cao Kinh tế đối ngoại – Viện Kinh tế & Kinh doanh quốc tế

Trường Đại học Ngoại thương, Hà Nội, Việt Nam

Nguyễn Thị Khánh Thư, Lê Yến Chi, Trần Xuân Mai,

Sinh viên K62 Chất lượng cao Kinh doanh quốc tế – Viện Kinh tế & Kinh doanh quốc tế

Trường Đại học Ngoại thương, Hà Nội, Việt Nam

Nguyễn Minh Phúc

Giảng viên Viện Kinh tế & Kinh doanh quốc tế

Trường Đại học Ngoại thương, Hà Nội, Việt Nam

Tóm tắt

Trong bối cảnh đô thị hóa nhanh chóng, tắc nghẽn giao thông và suy thoái môi trường, TOD được thúc đẩy như một giải pháp chiến lược tích hợp sử dụng đất và giao thông công cộng để tạo ra các khu vực mật độ cao, đa chức năng và thân thiện với người đi bộ. Trong khi các nghiên cứu quốc tế nhấn mạnh những lợi ích kinh tế, xã hội và môi trường của TOD, phần lớn các nghiên cứu hiện có chỉ thảo luận về những rào cản một cách khái quát hoặc trong

[1] Tác giả liên hệ, Email: k62.2313530025@ftu.edu.vn

phạm vi các nước phát triển. Nghiên cứu này xác định năm vấn đề cốt lõi trong quá trình triển khai TOD tại Hà Nội, bao gồm: thiếu sự phối hợp thể chế, thiếu nhà ở giá rẻ, nguồn vốn chuyên biệt không đủ, sự gián đoạn trong quản trị, và nhận thức tiêu cực của công chúng; đồng thời phân tích kinh nghiệm của Jakarta để rút ra những bài học áp dụng. Bằng cách điều chỉnh các chính sách và hành động của Jakarta cho phù hợp với bối cảnh kinh tế - xã hội và pháp lý của Hà Nội, nghiên cứu hướng tới đóng góp vào hiểu biết lý thuyết về TOD ở các nước đang phát triển và hoạch định chính sách thực tiễn cho phát triển giao thông và đô thị bền vững tại Việt Nam.

Từ khoá: TOD, Hà Nội, Jakarta

OVERCOMING IMPLEMENTATION PROBLEMS OF TRANSIT-ORIENTED DEVELOPMENT IN HANOI: LESSONS LEARNED FROM JAKARTA

Abstract

Against a backdrop of rapid urbanization, traffic congestion, and environmental degradation, TOD has been promoted as a strategic solution integrating land use and public transport to create high-density, mixed-use, and pedestrian-friendly areas. While international research highlights TOD's economic, social, and environmental benefits, most existing studies discuss barriers only in general terms or within developed countries. This research systematically identifies five core implementation problems in Hanoi, including lack of institutional coordination, shortage of affordable housing, insufficient dedicated funding, governance discontinuity, and negative public perceptions; and analyses Jakarta's experience to derive applicable lessons. By adapting Jakarta's policies and practices to Hanoi's socio-economic and legal context, the study aims to contribute to both the theoretical understanding of TOD in developing countries and practical policymaking for sustainable transit and urban development in Vietnam.

Keywords: TOD, Hanoi, Jakarta

---

1. Introduction

1.1. Rationale of the study

Urbanization has transformed cities globally since the mid-20th century. The urban population rose from under 1 to nearly 3.5 billion between 1950 and 2010 and is expected to exceed 5 billion by 2030 (UN-Habitat, 2022). This growth strains transport systems, land use, and the environment, causing congestion, pollution, and inefficient expansion. To address these issues, many countries have adopted Transit-oriented Development (TOD) as a strategic model for sustainable urban growth. By integrating land use planning with public transport systems, TOD offers multidimensional benefits. Economically, it increases land value and reinvestment potential (Cervero & Duncan, 2002); socially, it improves job and service access for low-income groups (ITDP, 2017); and environmentally, it helps reduce transport-related CO_2 emissions (Gao et al., 2022).

In Vietnam, the average population in 2023 reached 100.3 million, with 38.2 million (38.1%) living in cities (General Statistics Office of Vietnam, 2024). Rapid urbanization,

particularly in Hanoi, has intensified congestion, pollution, and transport demand. Motorcycles make up 85% of all trips (Tiền Phong, 2025), worsening traffic and safety issues (VnExpress, 2025). At the same time, Hanoi's metro system is still in its pilot phase with limited coverage, and the integration of TOD around metro stations remains largely experimental (Dân Trí, 2025).

In response to these challenges, Hanoi has begun revising its planning framework to support TOD. Decision No. 1668/QĐ-TTg (2024), which updates Hanoi's Master Plan to 2045 with a vision to 2065, identifies TOD as a key spatial strategy. The 2024 Law on the Capital and 2024 Land Law further strengthen its legal foundation. However, practical TOD implementation in Hanoi remains underexplored. Existing research often addresses general or developed-city contexts (Ibraeva et al., 2020; Tan et al., 2014a; Staricco & Vitale Brovarone, 2018; Chenchar, 2023; Horak, 2021), while domestic studies focus on national-level barriers (Son & Duong, 2025a, 2025b).

Given TOD's role in sustainable development (Cervero et al., 2013) and the research gap regarding TOD implementation in Hanoi, this study focuses on "Overcoming Implementation Problems of Transit-oriented Development (TOD) in Hanoi: Lessons Learned from Jakarta." Accordingly, this study not only systematizes the major challenges of TOD implementation in Hanoi but also analyzes Jakarta's experience to draw lessons and propose practical solutions. The findings are expected to contribute both to the theoretical understanding of TOD in developing countries and to policy-making and urban management strategies for sustainable TOD in Hanoi.

1.2. Literature review

1.2.1. Research into global implementation of TOD

Research on TOD in developing countries shows that its success depends strongly on local travel behavior and institutional capacity. Sharma and Dehalwar (2025) find that although TOD can promote public transport use in Delhi, residents continue to rely on motorcycles due to low costs, flexibility, and weak last-mile connectivity, issues that similarly challenge Hanoi's attempt to shift mobility patterns.

From a governance and infrastructure perspective, Huang (2009) demonstrates that TOD around Taiwan's high-speed rail stations succeeds only when supported by strong intra-city connections. This is echoed by Yahia et al. (2025) in Dubai, who show that even with major metro investments, TOD can underperform without supportive urban form, mixed-use density, walkability, and strong last-mile connectivity, leading to continued car dependence. Likewise, the comparative study of Bangkok, Ho Chi Minh City, Manila, and Jakarta by Tsumita et al. (2023) finds that while urban rail expansion enhances accessibility, weak feeder systems and discontinuous pedestrian networks limit TOD outcomes.

Financial and planning factors also matter. Bhagwati and Kumar (2024), analyzing Hong Kong, Singapore, and Washington, D.C., emphasize the role of land value capture and planning parameters such as density, mixed use, and walkability. Chen et al. (2024) add that functionality of TOD facilities, accessibility of essential services, and strategic station design are key contributors to success.

Vietnamese research offers further behavioral insights. Chen et al. (2021) examine citizen perceptions of TOD in Can Tho, showing that intentions to use public transit depend on service

quality as well as trust in government capacity and policy commitment. However, its single-city scope and limited variables restrict wider applicability. Similarly, Ngoc, P. T. K., & Ngoc, A. M. (2022) focus on what motivates or prevents Vietnamese travellers from choosing high-speed rail. Using Random Utility Theory and conjoint analysis, they find that ticket fare is the main barrier, while check-in time, waiting time, frequency, and station accessibility strongly influence choice. The study highlights that speed is less decisive than service convenience, though its nationwide sample may not capture all demographic differences.

1.2.2. Justification of research gaps

The preceding review outlines a solid foundation of TOD enablers and barriers across contexts, yet two interconnected gaps remain when the literature is applied to Hanoi.

First, there exists a synthesis and contextual application gap. International studies list key factors for TOD success, from travel behavior (Sharma & Dehalwar, 2023) and governance-infrastructure coordination (Huang, 2009; Tsumita et al., 2023) to urban form (Yahia et al., 2025), financial frameworks (Bhagwati & Kumar, 2024), and integrated station design (Chen et al., 2024). Meanwhile, Vietnamese studies such as Chen et al. (2021) in Can Tho highlight the importance of trust in government, and Ngoc & Ngoc (2022) emphasize service convenience.

However, these studies are either limited to a single-city scope (Chen et al., 2021) or do not directly address the TOD challenge in a major metropolis. No study has synthesized these multidimensional factors to form a comprehensive analytical framework for systematically diagnosing the specific barriers within Hanoi's complex institutional and urban context.

1.3. Research scope and objectives

1.3.1. Research scope

This study focuses on TOD projects associated with urban railway (metro) development in Hanoi, as this is the sector where TOD has been piloted in practice. It adopts a passenger-oriented perspective, examining commuters' travel experiences and needs within Hanoi and its nearby satellite areas.

Regarding time scope, it considers the TOD context in Hanoi during the period 2020 - 2025, with projections toward 2030 in line with the city's metro plans, and references to long-term master plan targets to 2045/2065 where relevant.

For comparative scope, Jakarta, Indonesia is selected as the reference case. The study reviews Jakarta's TOD development from the launch of TransJakarta bus rapid transit (BRT) in 2004 through its institutionalization in the 2010s to the LRT/MRT expansion up to 2023, emphasizing planning and governance lessons applicable to Hanoi.

1.3.2. Research objectives

This study aims to analyze the challenges in implementing TOD in Hanoi and propose feasible solutions drawn from Jakarta's experience.

To achieve this overall aim, several specific research objectives are defined as follows:

i. To review existing definitions of TOD and identify typical implementation challenges.
ii. To assess the current status of TOD implementation in Hanoi and the major issues it faces.

iii. To examine Jakarta's TOD experience, focusing on the problems encountered and solutions adopted.
iv. To derive lessons from Jakarta that can be adapted to Hanoi's context for more effective TOD implementation.

1.3.3. Research methodology

To conduct the study, a qualitative case study approach is adopted. First, secondary sources, including government reports, academic literature, policy documents, and credible media articles, are collected and analyzed. Next, the study applies the analytical framework of Ibraeva et al. (2020) on TOD implementation problems from the perspective of planning authorities, covering five aspects: (i) lack of institutional coordination, (ii) shortage of affordable housing, (iii) lack of dedicated funding, (iv) lack of governance continuity, and (v) negative perception/car culture. Based on this framework, a comparative analysis between Hanoi and Jakarta is conducted to extract lessons learned and propose solutions tailored to Hanoi's context.

2. Background and theoretical framework

2.1. Introduction of TOD

TOD first emerged in the late 20th century as a response to problems of urban sprawl, car dependency, and unsustainable growth patterns in modern cities (Cervero et al., 2013). The concept was notably popularized in the United States by Peter Calthorpe in the 1990s, who argued that urban development should be designed around high-quality public transit nodes rather than private automobile use (Calthorpe, 1993).

In Vietnam, Decision No. 1668/QĐ-TTg (2024) defines TOD as follows: The Transit-oriented Development (TOD) model is an urban development approach linked to public transport in areas planned for urban railway stations around the inner city, aimed at attracting population and workforce growth.

2.2. Theoretical framework

Ibraeva et al. (2020) identify implementation challenges and solutions as a key theme in TOD research, viewed from three main perspectives: planning authorities, transit agencies, and developers. While acknowledging that other stakeholders also encounter barriers, this study focuses on planning authorities, who play a central role in formulating and coordinating TOD policies. This focus is particularly relevant in Vietnam, where TOD remains largely at the policy and planning stage. Consequently, planning authorities serve as the key actors whose institutional and policy choices determine the feasibility of TOD.

According to Ibraeva et al. (2020), there are five main issues identified.

2.2.1. Lack of institutional coordination

Poor institutional coordination among land-use, transport, and urban agencies remains a major challenge for planning authorities. This study highlights three forms of misalignment: horizontal fragmentation, vertical misalignment, and stakeholder multiplicity.

Horizontal fragmentation occurs when agencies at the same level fail to coordinate. In Lahore, for instance, the Lahore Development Authority and Lahore Metropolitan Corporation

share land-use and building control along BRT corridors, but overlapping mandates, outdated regulations, and political interference have hindered cooperation, leading to poorly integrated BRT development (Nadeem & Matsuyuki, 2025).

Vertical misalignment arises when responsibilities are divided across governance tiers. Transport authorities often operate at the federal level, while land-use and urban development fall under provincial or municipal control. This separation fosters institutional silos, where agencies pursue independent priorities without shared mechanisms for decision-making or resource integration (Nadeem & Matsuyuki, 2025; Staricco & Vitale Brovarone, 2018).

Stakeholder multiplicity further complicates coordination when numerous public and private actors lack clear roles, shared goals, and consensus-building mechanisms. Such fragmentation across governance levels and sectors often delays projects or weakens TOD outcomes (Staricco & Vitale Brovarone, 2018).

Together, these coordination issues limit the integration of transport and land use, delaying projects and reducing TOD's transformative potential.

2.2.2. Potential lack of affordable housing

Affordable housing refers to housing with costs that are reasonable relative to the financial capacity of low- and middle-income households, including units priced below market rates or reserved for defined income groups (Hilber & Schöni, 2021; Freeman & Schuetz, 2017). Integrating affordability into TOD is vital to ensure social equity (Guthrie & Fan, 2016).

An important aspect of this challenge is the increase in land and real estate prices in close proximity to TOD areas, which can limit low-income households' access to housing and lead to displacement, replacing them with more affluent households (Padeiro et al., 2019). Another aspect is the limited capacity of planning authorities to enforce affordable housing policies. Overall, these issues undermine TOD's social objectives by restricting inclusivity. Within this study, the focus is on rising land prices and weak policy enforcement as the two main constraints.

2.2.3. Lack of dedicated funding

Planning authorities also struggle with a lack of dedicated funding. It refers to financial resources specifically allocated for the planning, construction, and maintenance of TOD-related infrastructure, including public transit facilities, development of areas surrounding transit stations, and pedestrian-friendly amenities.

Insufficient financial resources at the local government level not only limit the implementation of infrastructure around transit stations but also affect the ability to acquire and consolidate land. In Malaysia, financial constraints have restricted the scale and scope of TOD projects, making it difficult to achieve the intended objectives of improving urban mobility and promoting sustainable development (Zainuddin et al., 2024). In addition, land ownership in urban areas is often fragmented, and land prices increase around transit stations, making land acquisition and consolidation more complex (Rodriguez & Mojica, 2009; Mathur & Gatdula, 2021; Yen et al., 2023).

Funding instability also deters private investment, as developers hesitate to commit without assured infrastructure support, especially amid rising construction costs and inflation

(Chenchar, 2023). Generally, these challenges collectively constrain the effective and coordinated realization of TOD projects.

2.2.4. Lack of governance continuity

Governance continuity, the stability of policies and institutions across political cycles, is vital for long-term TOD success. However, frequent policy shifts, changing political priorities, and weak coordination often disrupt implementation (Tan et al., 2014b; Staricco & Vitale Brovarone, 2018). When political power changes, urban transport plans risk being revised, suspended, or cancelled to align with new agendas (Pojani & Wu, 2016; Nguyen & Pojani, 2018; Horak, 2021). These shifts cause fluctuations in policy goals and instruments (Zhang et al., 2022), making it difficult to maintain a consistent TOD strategy.

Lack of governance continuity largely stems from unstable inter-agency coordination, overlapping mandates, and weak institutional frameworks (Marsden & May, 2006; Lee et al., 2022). This instability breeds uncertainty, diffuses accountability, and undermines investment sustainability, ultimately hindering the realization of TOD's long-term goals.

2.2.5. Negative perception of station areas/public transport by local residents; car culture

Public perception also affects TOD success. Many residents associate station areas and public transport with insecurity, discomfort, and unreliability (Delbosc & Currie, 2011; Sun et al., 2020). Cultural attitudes and societal values strongly shape these views (Tan et al., 2014b). Where public transport and high-density living are socially accepted, stakeholder collaboration and TOD implementation are more feasible. Conversely, in contexts that prioritize private car use, TOD projects often face resistance, as car ownership is viewed as a social norm.

Car dependence stems not only from cultural preferences but also from the emotional, functional, and practical benefits of car use, as well as limited knowledge of public transport systems (von Behren et al., 2018; Redman et al., 2013). Moreover, complex or poorly communicated public transport networks discourage users unfamiliar with routes or schedules (Ramos et al., 2019; Soh et al., 2014).

Collectively, these perceptions and challenges reduce the attractiveness of TOD initiatives and undermine public support for public transport policies and investments.

3. TOD implementation problems in Hanoi

3.1. Overview of Hanoi's urban transport and TOD-related projects

3.1.1. Urban transport situation

Hanoi's transport system heavily depends on motorcycles, comprising about 85% of city trips (Tiền Phong, 2025). This prevalence is attributed to cost-effectiveness and adaptability amid spatial and congestion limitations. However, it exacerbates air pollution, traffic incidents, and land use inefficiencies, posing significant obstacles to sustainable mobility (VnExpress, 2025). Car ownership has notably surged, increasing from about 600,000 in 2018 to over 1 million by 2024 (Lao Động, 2024), intensifying the strain on Hanoi's already congested roads. Concurrently, public bus services, while popular, face criticism for issues such as overcrowding, delays, and insufficient coverage (Nhân Dân Online, 2024).

Hanoi's metro system is becoming a feasible alternative to road transport. In the first quarter of 2025, the two operational lines (Cat Linh - Ha Dong and Nhon - Ha Noi) served nearly 4.8 million passengers, averaging over 50,000 daily riders (Hà Nội Mới, 2025). Nevertheless, these figures are modest relative to the network's potential, indicating significant opportunities for enhancing ridership and service integration.

3.1.2. Current TOD-related projects

Under Resolution 188/2025/QH15, the National Assembly of Vietnam in 2025 approved special mechanisms for urban railways, including the implementation of TOD in Hanoi, with plans for eight priority metro lines: Line 1 (Yen Vien - Ngoc Hoi, 15 km), Line 2 (Nam Thang Long - Tran Hung Dao, 11.5 km), Line 3 (Nhon - Hanoi Station, 12.5 km), Line 4 (Me Linh - Lien Ha, 54 km), Line 5 (Van Cao - Hoa Lac, 38.43 km), Line 6 (Noi Bai - Ngoc Hoi, 43 km), Line 7 (Me Linh - Yang Xa, 28 km), and Line 8 (Son Dong - Huong Son, 37 km), with potential TOD pilots near high-tech parks and universities.

Hanoi's TOD strategy, initially comprehensive, was refocused into pilot projects under the updated master plan (Decision 1569/QĐ-TTg, 2024) due to delays (Prime Minister of Vietnam, 2024). Line 3 (Nhon - Hanoi Station), a $1.4 billion project, pioneered TOD features such as mixed-use and pedestrian-oriented development within a 500 m radius (Vietnam News Agency, 2024; World Bank, 2024a). It will be followed by Line 2, the first fully TOD-centric line (groundbreaking in October 2025), and Line 5, linking to high-tech parks and universities (World Bank, 2024a; National Assembly of Vietnam, 2025a). A key project is the Ngoc Hoi Station, a major 251-hectare multi-modal hub integrating high-speed and urban rail (World Bank, 2025). Its 500-800m TOD zone could unlock 50-76 hectares for development via on-slab development (OSD) (World Bank, 2024a; World Bank, 2025). However, fragmented governance and land acquisition issues have slowed progress, with only partial clearance achieved by mid-2025 (Toan, 2022).

3.2. Implementation problems in Hanoi

3.2.1. Lack of institutional coordination

A primary barrier to TOD in Hanoi is the persistent lack of coordination among planning authorities, which results in a fragmented and desynchronized system and manifests in three key dimensions.

The first one is horizontal fragmentation. Coordination among departments at the same level remains weak, with each agency continuing to operate within its own silo. Despite Hanoi's ambitious metro plans, integration between transport, land use, and urban design is still limited. The Department of Transport, Planning and Architecture, and Natural Resources and Environment often pursue separate agendas, resulting in poorly integrated station-area planning and underutilized TOD potential (Anh, 2025).

The second dimension is vertical alignment. Coordination gaps also persist between central ministries and local governments, exacerbated by the recent restructuring of Hanoi's two-tier government model. Although intended to enhance efficiency, overlapping authority and cumbersome procedures, especially in land, investment, and construction continue to delay urban

and TOD projects. Both levels of government have recognized these frictions and are pursuing guidance reforms, capacity building, and regulatory adjustments to address them (Nam, 2025).

The last factor is stakeholder multiplicity. The absence of a strong coordinating body further complicates the alignment of state agencies, private developers, and communities. As noted by Dr. Emmanuel Cerise, Director of the Paris Region Expertise Vietnam, Hanoi needs greater decentralization to leverage public-private partnerships effectively. The Hoa Lac satellite city exemplifies this fragmentation, where poor coordination has produced isolated "traffic islands" rather than integrated TOD zones (Thang, 2023).

Collectively, these coordination failures cause project delays, missed opportunities for integrated planning, and weakened investor confidence, ultimately undermining TOD's transformative potential for sustainable urban development.

3.2.2. Potential lack of affordable housing

A major challenge for TOD in Hanoi is the risk of excluding low- and middle-income residents from housing near transit hubs. The city already suffers from a severe shortage of affordable units (under VND 3 billion), making homes in TOD zones increasingly out of reach for workers, young professionals, and students. Without intervention, TOD areas could become exclusive enclaves for higher-income groups, undermining their intended inclusivity (Khanh, 2024).

This problem is intensified by real estate speculation. Announcements of new metro lines have spurred price hikes of 40-50% or more in areas like Dong Anh, mirroring global TOD trends. While profitable for investors, this prices out ordinary households and undermines the equitable distribution of public infrastructure benefits (Arcadia Consulting, 2025).

Institutionally, fragmented planning and housing regulations hinder the enforcement of affordable-housing mandates (Foyt, 2018; Harvard Law Review, 2022). Inconsistencies between the Housing and Land Laws, coupled with slow approvals and weak anti-speculation tools, enable land hoarding and further inflate price (Foyt, 2018; VSE Lawyers, 2024; Vietnamnet, 2025).

Unlike Ho Chi Minh City, which has begun this integration, Hanoi's planning remains nascent. Without deliberate mechanisms, TOD risks exacerbating socio-spatial inequality by displacing lower-income residents from transit-rich neighborhoods (Việt Nam News, 2025).

3.2.3. Lack of dedicated funding

A critical barrier to TOD in Hanoi is the absence of sufficient and dedicated financial resources. The massive scale of the planned railway network far exceeds the state budget's capacity, leading to construction delays and constrained TOD infrastructure, thereby reducing its transformative potential (Khanh, 2023).

Internationally proven financing mechanisms like Public-Private Partnerships (PPP) and Land Value Capture (LVC) remain underdeveloped in Hanoi. Furthermore, fragmented land ownership and soaring land prices around planned stations make land acquisition expensive and complex, hindering the assembly of land for integrated projects (Rodriguez & Mojica, 2009; Mathur & Gatdula, 2021; Yen et al., 2023).

Finally, the instability of funding streams complicates long-term planning. This uncertainty deters private investment, as developers cannot be assured that supporting infrastructure will be delivered, thereby increasing financial risks and undermining the coordinated realization of TOD (Chenchar, 2023; Freemark et al., 2025).

3.2.4. Lack of governance continuity

Many international studies highlight that institutional fragmentation in Vietnam's urbanization governance hinders long-term projects like TOD. The "Vietnam Urbanization Report - Technical Assistance Report" (World Bank, 2022) notes that overlapping responsibilities between ministries (e.g., Transport, Construction) and the Hanoi People's Committee cause poor coordination, vague management, and project delays, a key cause of time overruns in Hanoi's construction (Toan et al., 2014). Frequent design and capital revisions further disrupt both metro projects and associated development plans (VnEconomy, 2024).

Political shifts also interrupt urban transport strategies. For instance, Metro Line 2 (Nam Thang Long - Tran Hung Dao) has faced prolonged delays and route adjustments (Đài Hà Nội, 2025), while the Cat Linh - Ha Dong line was completed years behind schedule (Công an nhân dân, 2024). These disruptions postponed not only mass transit services but also TOD-related high-density developments. The BRT corridor Kim Ma - Yen Nghia exemplifies the same issue: initially envisioned as part of a multi-line BRT network to promote TOD, it remains a single, underused route due to inconsistent planning and investment (VnExpress, 2024).

Collectively, these cases demonstrate how fragmented governance and weak policy continuity obstruct TOD implementation. Recent efforts to streamline ministries and enhance oversight may help overcome these institutional bottlenecks and enable future TOD progress.

3.2.5. Negative public perception of public transport / cultural preferences

A significant barrier to TOD is the strong public preference for private vehicles, with over 80% of daily trips in Hanoi made by motorbikes due to their flexibility, cost, and cultural factors (Bray & Holyoak, 2018; World Bank, 2024b). This contrasts sharply with cities like Seoul or Tokyo, where public transport is valued for its speed and reliability. To advance TOD, Hanoi must therefore not only build infrastructure but also actively shift travel behavior through targeted policies and communication.

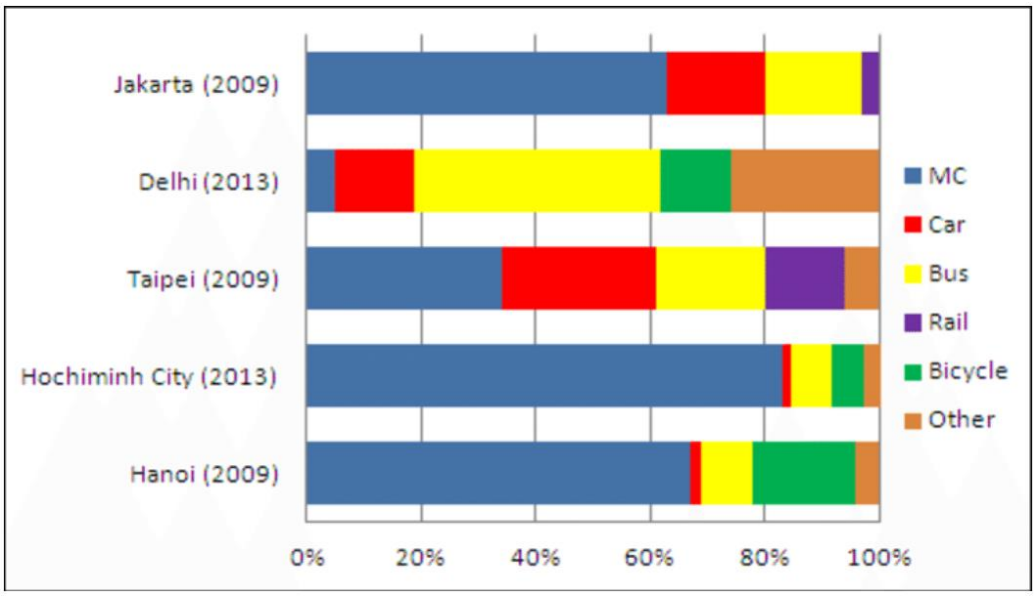

Figure 3-1. Share of different mode in Hanoi and other Asian cities

Source: Ngoc et al., 2017

4. Case study of Jakarta

4.1. TOD implementation in Jakarta

4.1.1. Infrastructure foundation (2004 – 2012)

Jakarta began pursuing TOD to address rising urban issues, as traffic congestion worsened and motorcycle ownership surged by 1 million between 2000 and 2002.

In 2004, Jakarta launched TransJakarta, Southeast Asia's first BRT. Despite early skepticism, it expanded to 180 km by 2012 - making it become one of the world's largest BRT systems (ITDP Indonesia, 2012). Though not yet featuring a formal TOD framework, TransJakarta's launch marked a shift in Jakarta's mobility planning by introducing mass transit and boosting ridership fivefold by 2009. In 2009 along with the opening of the 8th route, the ridership increased to 500% (Chinitra, n.d.). This phase laid the groundwork for future TOD, despite missing integrated land use and legal frameworks.

4.1.2. Institutionalization of TOD (2013 – 2021)

The second phase saw Jakarta formally adopt TOD and introduce rail-based mass transit with the MRT North - South Line. Construction began in 2013 (Lebak Bulus-Bundaran HI) but faced land acquisition delays before opening in 2019 as the city's first 15.7 km underground metro (Infrastructure Hub, 2021), expected to serve about 200,000 passengers daily with potential to handle more under high-use scenarios (Knight Frank Indonesia, n.d.).

Jakarta advanced TOD through the JakLingko system, integrating MRT, LRT, TransJakarta, and commuter rail under a unified ticketing and route network (Jakarta.go.id, 2023). Governor Regulation No. 67/2019 institutionalized TOD, requiring mixed-use, high-density development within 800 meters of transit hubs and appointing MRT Jakarta as a key developer (The Jakarta Post, 2019).

Progress has been slow due to weak legal authority and missing bylaws (The Jakarta Post, 2019). Pilot PPPs like Dukuh Atas (USD 90 million investment) faced land and community issues. Before COVID-19, MRT Jakarta and TransJakarta served about 90,000 and 800,000 daily riders, respectively, but the pandemic caused ridership drops of up to 80% and delayed TOD plans (Antara News, 2021).

4.1.3. Integration and regional expansion (2022 – present)

The current stage marks Jakarta's effort to expand TOD beyond the city center, building on past lessons to tackle new metropolitan challenges. The 2023 launch of the LRT Jabodebek connected Jakarta with Bogor, Depok, and Bekasi, serving about 30,000 daily passengers in its first ten days, well below the government's target of 180,000 (Jakarta Globe, 2023).

Dukuh Atas is Jakarta's most integrated transit hub, connecting MRT, KRL, LRT, Airport Rail Link, and TransJakarta (Putri, 2024). Located in the Golden Triangle, it still has room to double its population, reflecting strong TOD potential (Irsal et al., 2022). In 2023, Jakarta advanced TOD through MRT extensions, pedestrian decks, and mixed-use projects at Blok M and Fatmawati, aligned with sustainability goals under Governor Regulation No. 90/2021 (Jakarta Investment Centre, 2025). Integrated ticketing and first-last mile improvements further promote compact, walkable, and transit-oriented urban living.

4.2. Problems faced by Jakarta

4.2.1. Lack of institutional coordination

Regarding horizontal fragmentation, according to SMI Insight (2019), many TOD projects were delayed due to poor coordination among agencies at equal governance levels, including Jakarta's administration, West Java and Banten provinces, and national ministries. The Bogor Station TOD, for instance, stalled despite a 2017 MoU because of conflicting regulations and approval barriers. Overlapping rules, such as Jakarta issuing its own TOD regulations before national guidelines, caused duplication and disputes. Additionally, limited private sector participation constrained innovation and sustainable financing, as development was dominated by state-owned enterprises. In response, Jakarta proposed several measures. An inter-jurisdictional coordinating body was recommended to align land-use and transport planning and resolve regulatory conflicts. A unified master plan was suggested to ensure consistent policy implementation, while PPPs and LVC schemes were promoted to attract private investment. Efforts were also made to harmonize TOD-related regulations across agencies. These steps reflect Jakarta's recognition of institutional fragmentation and its move toward more coordinated, effective TOD implementation.

About vertical misalignment, as stated by Hasibuan et al. (2024), Jakarta, alongside other Indonesian cities such as Bandung and Surabaya, has faced persistent difficulties in organizational coordination and misalignment among governmental bodies and communities. In response, the Jakarta government established a clearer institutional structure spanning national to neighborhood levels, strengthening coordination among authorities, developers, and the private sector. Community, religious, and educational leaders were also engaged to build consensus for TOD. By combining top-down direction with bottom-up participation, reflecting

Indonesia's tradition of deliberation, the government improved multi-level coordination and gradually reduced vertical misalignment.

With respect to stakeholder multiplicity, according to ITDP (2021), Jakarta's automobile-oriented growth resulted in severe congestion, pollution, and a fragmented transport system. Public transport development involved numerous uncoordinated actors, government agencies, operators (TransJakarta, MRT, LRT, Mikrotrans), communities, and private investors, working in parallel. Without a central coordinating body or unified plan, conflicts often arose over standards, connectivity, and benefit distribution. In response, Jakarta launched the JakLingko initiative in 2018 to integrate its fragmented transport system through unified service standards, ticketing, and intermodal connections. It also improved pedestrian and cycling infrastructure, expanding coverage to 82% of the population and coordinating over 4,000 buses. Complementary policies on car use, green transport, and community engagement enhanced efficiency, sustainability, and public support for TOD.

4.2.2. Potential lack of affordable housing

A major barrier to Jakarta's TOD is the lack of affordable housing. Surging land values around transit hubs, driven by projects like the Jakarta-Bandung HSR and MRT/LRT expansions, have priced out low-income households. By 2025, land prices ranged from IDR 10 - 15 million/m² in East Jakarta to over IDR 53 million/m² in the CBD, with some areas rising up to 26.2% annually (Shopify API, 2024; Global Property Guide, 2025). With prices reaching IDR 20 - 60 million/m² (Abadi et al., 2024), affordable housing in TOD zones is financially unfeasible, pushing developers toward high-end projects and excluding low-income residents from transit-accessible areas.

In response, Indonesia's housing regulations allow developers to meet the balanced housing requirement by either building affordable units within or outside TOD areas, in nearby municipalities, or by paying a conversion fee to the government (Indonesia Legal Alert, 2025). Due to high TOD land costs, Jakarta mainly applies the conversion fund mechanism, where developers contribute financially instead of constructing units on-site. The government then uses these funds to develop affordable housing in more viable locations, ensuring private sector participation while easing cost pressures in TOD zones. Jakarta's use of conversion payments offers a pragmatic way to balance high land values with housing inclusivity, helping reduce socio-spatial segregation and ease affordability constraints in TOD development (Abadi et al., 2024).

4.2.3. Lack of dedicated funding

Another key barrier to Jakarta's TOD implementation is the shortage of public investment, compounded by high land acquisition costs driven by escalating land prices and fragmented land ownership patterns. As noted by Gunawan et al. (2020), TOD requires substantial financial resources not only for the construction of public transport infrastructure but also for the development of surrounding areas, including housing, commercial facilities, and office spaces.

A PPP model is proposed where the government develops and operates the LRT, while the private sector manages mixed-use properties (Gunawan et al., 2020). The private sector covers about 40% of capital and 66% of operating costs, earning 72% of property revenues, with an IRR of 14.92%, proving financial viability. A hedonic pricing model quantifies property

value gains around LRT stations, including Ciracas (11.7%), Bekasi Timur (11.01%), Cibubur (19.51%), Jaticempaka (12.01%), turning land appreciation into capital. This structure attracts private investment, eases public fiscal burdens, and supports sustainable TOD financing.

4.2.4. Lack of governance continuity (political cycles, fragmented plans)

The governance of national roads and expressways in Indonesia highlights persistent coordination challenges. According to World Bank (2020), responsibilities related to national roads and expressways in Indonesia before 2019 were split among several agencies under the Ministry of Public Works and Housing, including Directorate General of Highways (DGH), and Indonesia Toll Road Regulatory Authority (BPJT). To be more detailed:

- DGH manages national roads, consisting of five directorates, 18 Balai offices, and one office specializing in bridges and tunnels (BJKT).
- BPJT is responsible for implementing the Expressway Development Program, including tariff recommendations, PPP investments, and supervision of toll road construction and operation.
- The DGH is highly decentralized, with only 10% of staff at the central level and 90% at local Balai offices. The Balai are relatively autonomous, responsible for planning, designing, and implementing projects.

Before 2017, Jakarta's land use and transport planning were managed separately by Bappeda, the Transportation Agency, and the Spatial Planning Agency, resulting in fragmented and uncoordinated development (Elyda, 2016). This overlap caused inconsistencies, weak investment management, and project delays especially for TOD.

In response, Indonesia has sought to reduce fragmented governance by strengthening institutional coordination. Creating the Directorate General of Infrastructure Financing (DGIF) in 2019 helped centralize PPP and investment responsibilities, reducing overlaps with DGH and BPJT and improving financial consistency for major transport projects (World Bank, 2020).

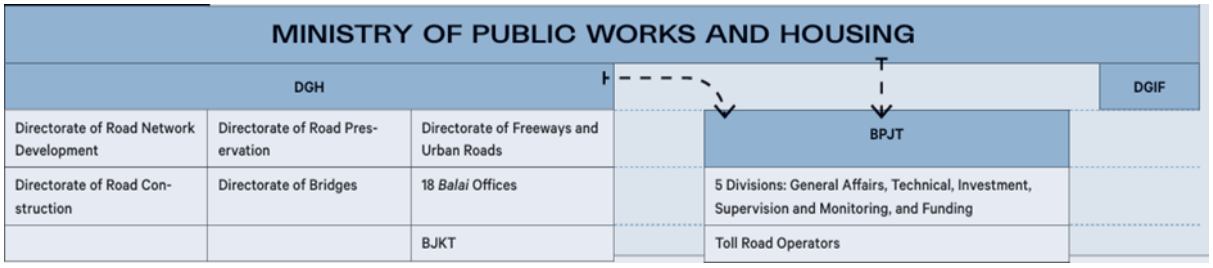

Figure 4-1. Institutional arrangements for Indonesia's national road and expressway subsectors

Source: World Bank, 2020

At the city level, Jakarta issued Governor Regulation No. 44/2017 on TOD, which designated TOD zones around MRT, LRT, and commuter rail stations and unified planning authority under the provincial government. This regulation, together with institutions like MRT Jakarta Corporation, has improved alignment between transport infrastructure and land use planning (Andapita, 2019). These steps have provided a clearer framework and better continuity for TOD development.

4.2.5. Negative public perception of public transport/cultural preferences

Public perception remains a major barrier to Jakarta's TOD. Despite heavy investment in MRT, LRT, and TransJakarta, many residents still favor cars and motorcycles for their convenience, flexibility, and social prestige (Sefriyadi et al., 2023). Public transport is often viewed as inconvenient and unsafe, while poor last-mile connectivity and weak integration between modes further discourage use, keeping MRT ridership below expectations and limiting TOD effectiveness (Pasha, 2024).

Jakarta has expanded and modernized its transit network to improve public perception. TransJakarta became the world's largest BRT system (VnExpress, 2023), while the MRT (2019) and LRT (2023) introduced higher-quality options for wider user appeal (Afra, 2019; Wahyudiarto, 2025). The city also enhanced integration through the JakLingko ticketing system, pedestrian upgrades, and feeder buses (JakLingko Indonesia, n.d.; Syahrani, 2025). However, deep-rooted preferences for private vehicles remain a great obstacle to promoting mass transit use.

5. Recommendations for Hanoi

5.1. Comparison between Jakarta and Hanoi

5.1.1. Analysis of comparable stages

To ensure a sensible comparison between Jakarta and Hanoi before TOD implementation, it is necessary to align time periods where both cities are at a comparable stage. Both periods of the two cities below represent the early stage of TOD development, where plans exist and policy frameworks are established but large-scale implementation remains limited.

Table 5-1. Timeline comparing Jakarta and Hanoi

Jakarta (2012 - 2017)		**Hanoi (2020 - 2025)**	
2012	TOD concept first appeared in the Regional Spatial Plan 2030 (Hasibuan & Muyani, 2022)	2021	Line 2A (Cat Linh - Ha Dong) opened as Vietnam's first metro line (Hanoi Rail Transit, n.d.)
2014	The Spatial Plan and Zoning was adopted to support TOD implementation (Oktafianus et al., 2025)	2024	TOD appeared in Article 31 of the 2024 Capital Law and Decision No. 1569/QĐ-TTg approving the Master Plan of Hanoi in 2021 - 2030, with a vision to 2050 (National Assembly of Vietnam, 2024b; Prime Minister of Vietnam, 2024)
2017	• First TOD regulations were issued in Regulation No. 16/2017 and No. 44/2017 (Hasibuan & Muyani, 2022; Oktafianus et al., 2025) • Several TOD station-area projects were kicked off (e.g, Pondok Cina station, Senen railway station) (Aisyah, 2017; News Desk, 2017)	2025	The 2025 Railway Law was passed, determining TOD with railways (National Assembly of Vietnam, 2025b)

Source: Compiled by authors, 2025

5.1.2. Key similarities and differences

Regarding similarities, both cities have faced pressure from growing population and high congestion levels due to high reliance on private vehicles, especially motorbikes, while public transport just accounts for a small share. Sidewalks are limited, constraining walkability in both cities. Besides, Jakarta and Hanoi experience strong conversion of agricultural and green land into built-up urban areas, leading to urban sprawl and reduced green connectivity. Lastly, some TOD-related transit projects are already operating whereas others are still underway.

However, the congestion problem in Jakarta is much more severe and Jakarta has a decentralized governance system while that of Hanoi gravitates towards centralization. Moreover, Jakarta is superior to Hanoi regarding economic capacity and public transit maturity.

5.2. Suggested solutions

5.2.1. Institutional framework and coordinated authority

To ensure effective TOD, a single authority is needed to integrate land use, transportation, and construction planning. Both cities have experienced fragmented coordination, leading to overlapping responsibilities and delays. Jakarta delegated TOD planning authority to the provincial government and public transport operators, centralized PPP and infrastructure investment management through the DGIF, and introduced The JakLingko system to integrate infrastructure, ticketing, and services across MRT, LRT, TransJakarta, and the Commuter Line. However, institutional fragmentation is still evident in Hanoi's metro projects, with the Cat Linh - Ha Dong line operating below design capacity and the Nhon - Hanoi Station line facing delays and cost overruns. These highlight the urgent need for a dedicated TOD authority under the People's Committee to approve, plan, and oversee integrated development.

5.2.2. Legal and policy foundations

Compared to Jakarta, Hanoi has a more favorable legal framework for TOD, with the 2024 Capital Law allowing adjustments to construction indicators and land value increments, the 2024 Land Law introducing flexible resettlement mechanisms, Resolution 188/2025 allowing pilot TOD projects linked to metro development, and the 2045 Capital Master Plan designating TOD as a pillar of spatial development. These instruments provide a solid foundation for a one-stop agency, enabling Hanoi to avoid Jakarta's mistakes while learning from its metro lines.

5.2.3. Social inclusion and equitable development

Jakarta's overemphasis on infrastructure and land value capture has led to gentrification, affecting affordable housing. However, Hanoi's legal framework offers more concrete tools for social inclusion, namely the 2023 Housing Law and 2024 Land Law. If incorporated into detailed TOD plans from the beginning, these provisions can secure social housing quotas, create incentives, minimize gentrification risks, preserve social diversity, and maintain a stable ridership base.

5.2.4. Sustainable financing

Financial and policy stability are crucial for long-term success in TOD projects. Beside current legal instruments in capturing land and floor-space value around metro lines, which provide a durable financial base and reduce reliance on unstable state budgets, Hanoi should also incorporate TOD into medium-term financial planning to ensure continuity across political cycles.

5.2.5. Governance stability

Jakarta's JakLingko system demonstrates the benefits of an integrated system in coordinating different stakeholders. Hanoi could address fragmentation and coordination gaps by establishing a joint venture involving state and municipal transit agencies, metro operators, and bus companies. This entity would coordinate operational integration and service planning, enabling the rollout of an integrated payment system covering various modes, even informal transit ones (e.g. motorbikes). Simple fare packages, stable subsidy schemes, and smart digital ticketing could strengthen the system. Hanoi should also improve feeder services, station amenities, pedestrian-friendly stations, and media communications to raise awareness about public transport's environmental and economic benefits.

5.2.6. Behavioral change and public awareness

Jakarta's rapid rise in motorcycle usage despite expanding BRT and rail networks suggests balancing cultural preferences may be challenging in the short term. To capture demand, public transport must improve service quality, expand feeder bus networks, and make TOD areas destinations with commerce, services, and green spaces over time. Hanoi should include more designated parking and pick-up/drop-off zones at transit hubs to integrate motorcycles as additional feeder modes. A phased approach, providing safe parking and managing stations, while expanding quality feeder buses, walking, and cycling networks, can limit long-term negative impacts.

6. Conclusion

This report set out to examine the barriers to implementing TOD in Hanoi and to explore what can be learned from Jakarta’s experience. Drawing on an adapted framework from Ibraeva et al. (2020), the study systematically analysed five core challenges facing Hanoi. Each of these factors undermines the city’s ability to realise the multidimensional benefits of TOD.

Jakarta’s experience shows that TOD challenges can be overcome through clear coordination between transit and land use, inclusion of affordable housing, diversified financing via PPPs and land value capture, and consistent long-term policies. Its progress in first–last mile integration and shifting travel behavior highlights that infrastructure success depends equally on institutional and social change.

For Hanoi, these lessons provide a clear roadmap. Backed by the 2045 Master Plan, revised Land Law, and special urban rail mechanisms, the city now has a stronger institutional base than Jakarta initially had. Strengthening coordination, ensuring housing affordability, diversifying funding, and promoting behavioral change can help Hanoi transform TOD from pilot projects into a core urban strategy, enhancing mobility, sustainability, and overall urban livability.

In short, the research confirms that TOD is not just a transport or land-use strategy but a holistic urban development model. If Hanoi applies these lessons consistently and adapts them to its socio-economic context, TOD can become a practical foundation for building a greener, more inclusive, and more resilient capital city.

REFERENCES

Abadi, A. A., Poerbo, H. W., Yuwono, T., & Isnandya, A. R. (2024). *Balancing Act: Promoting Affordable Housing in Jakarta's Transit- Oriented Development through Public-Private Partnership*. Journal of Construction in Developing Countries, 29(S1), 287-314. https://doi.org/10.21315/jcdc.2024.29.s1.14 [Accessed September 14, 2025].

Afra, M. (2019). *MRT Jakarta officially rolls out*. The Jakarta Post. https://www.thejakartapost.com/news/2019/03/25/mrt-jakarta-officially-rolls-out.html [Accessed September 14, 2025].

Aisyah, R. (2017). *TOD project breaks ground at Pondok Cina station*. The Jakarta Post. https://www.thejakartapost.com/news/2017/10/02/tod-project-breaks-ground-at-pondok-cina-station.html [Accessed September 16, 2025].

Andapita, V. (2019). *Officials suggest bylaw, new authority to accelerate TOD projects*. The Jakarta Post. https://www.thejakartapost.com/news/2019/11/14/officials-suggest-bylaw-new-authority-accelerate-tod-projects.html [Accessed September 5, 2025].

Anh, D. (2025). *Phát triển đô thị theo mô hình TOD: Hướng đi tất yếu cho một Thủ đô hiện đại.* Báo Điện tử Chính phủ. https://thanglong.chinhphu.vn/phat-trien-do-thi-theo-mo-hinh-tod-huong-di-tat-yeu-cho-mot-thu-do-hien-dai-103250426095049397.htm?fbclid=IwY2xjawNQWbhleHRuA2FlbQIxMABicmlkETFKT2liamN5WnExajg0T2U5AR4hwO98vCXK_wk-QHJuqM9y2l3EOgo_XaJIjI97CCAC0L2EcNX__rAKfJX7og_aem_e3Ya9pW1GScUOWxAyHOAGA [Accessed September 14, 2025].

Antara News. (2021). *Number of MRT Jakarta's daily passengers down 80% in July*. https://en.antaranews.com/news/181418/number-of-mrt-jakartas-daily-passengers-down-80-in-july [Accessed September 10, 2025].

Arcadia Consulting. (2025). *Vietnam's urban rail expansion and housing market dynamics*. https://arcadiaconsult.com.vn/en/vietnams-urban-rail-expansion-and-housing-market-dynamics/ [Accessed September 11, 2025].

Bhagwati, P., & Kumar, M. (2024). *Transit-Oriented Development: Learnings from Global Examples*. LOGI – Scientific Journal on Transport and Logistics, 15(1), 1–12. https://doi.org/10.2478/logi-2024-0001 [Accessed September 15, 2025].

Bray, D., & Holyoak, N. (2015). *Motorcycles in Developing Asian Cities: A Case Study of Hanoi*. ResearchGate. https://www.researchgate.net/publication/282332097_Motorcycles_in_Developing_Asian_Cities_A_Case_Study_of_Hanoi [Accessed September 14, 2025].

Calthorpe, P. (1993). *The next American metropolis: Ecology, community, and the American dream*. Princeton Architectural Press.

Cervero, R., & Duncan, M. (2002). *Transit's value-added effects: Light and commuter rail services and commercial land values*. Transportation Research Record: Journal of the Transportation Research Board, 1805(1), 8-15. https://doi.org/10.3141/1805-02 [Accessed September 4, 2025].

Cervero, R., Suzuki, H., & Iuchi, K. (2013). *Transforming cities with transit: Transit and land-use integration for sustainable urban development*. World Bank. https://hdl.handle.net/10986/12233 [Accessed September 4, 2025].

Chen, H. D., Zhao, K., Zhang, Z., Zhang, H. D., & Lu, L. J. (2024). *Methods for the Performance Evaluation and Design Optimization of Metro Transit-Oriented Development Sites Based on Urban Big Data*. Land, 13(8), 1233. https://doi.org/10.3390/land13081233 [Accessed September 16, 2025].

Chen, J. H., Nguyen, H. T. T., Chou, C. C., Wang, J. P., & Wang, T. K. (2021). *Transit-Oriented Development: Exploring Citizen Perceptions in a Booming City, Can Tho City, Vietnam*. Sustainability, 13(3), 1370. https://doi.org/10.3390/su13031370 [Accessed September 19, 2025].

Chenchar, J. (2023). *Barriers to transit-oriented development in Portland, Oregon*. 1000 Friends of Oregon. https://friends.org/sites/default/files/2023-07/TOD%20Report%202023%20Jon%20Chenchar_0.pdf [Accessed September 17, 2025].

Chinitra, C. (n.d.). *TransJakarta: Jakarta bus rapid transit system*. Mass Transit Practices. https://masstransitpractices.com/wp-content/uploads/2019/12/transjakarta_jakarta_bus_rapid_transit_s.pdf [Accessed September 13, 2025].

Công an nhân dân. (2025). *Đường sắt đô thị hút khách, nhưng tiến độ thực hiện dự án còn chậm*. https://cand.com.vn/giao-thong/duong-sat-do-thi-hut-khach-nhung-tien-do-thuc-hien-du-an-con-cham-i747408/ [Accessed September 14, 2025].

Dân Trí. (2024). *Overcoming difficulties to bring the Nhon-Hanoi Station metro line to completion*. https://dantri.com.vn/thoi-su/vuot-kho-dua-metro-nhon-ga-ha-noi-ve-dich-20240619153946182.htm [Accessed September 13, 2025].

Delbosc, A., & Currie, G. (2011). *Transport problems that matter: Social and psychological links to transport disadvantage*. Journal of Transport Geography, 19(1), 170-178. https://doi.org/10.1016/j.jtrangeo.2010.01.003 [Accessed September 11, 2025].

Đài Hà Nội. (2025). *Tái khởi động tuyến metro Nam Thăng Long - Trần Hưng Đạo*. https://hanoionline.vn/tai-khoi-dong-tuyen-metro-nam-thang-long-tran-hung-dao-304054.htm [Accessed September 13, 2025].

Elyda, C. (2016). *City, central government lack integrated transportation plan*. The Jakarta Post. https://www.thejakartapost.com/news/2016/01/02/city-central-government-lack-integrated-transportation-plan.html [Accessed September 12, 2025].

Foyt, A. (2018). *Legal Obstacles to Affordable Housing Development*. Houston Law Review, 56(2), 505-538. https://houstonlawreview.org/article/6781-legal-obstacles-to-affordable-housing-development [Accessed September 10, 2025].

Freeman, L., & Schuetz, J. (2017). *Producing Affordable Housing in Rising Markets: What Works?.* Cityscape, 19(1), 217-236. http://www.jstor.org/stable/26328307 [Accessed September 17, 2025].

Gao, J., Ma, S., Li, L., Zuo, J., & Du, H. (2022). *Does travel closer to transit-oriented development (TOD) have lower CO_2 emissions? Evidence from ride-hailing in Chengdu, China*. Journal of Environmental Management, 308, 114636. https://doi.org/10.1016/j.jenvman.2022.114636 [Accessed September 13, 2025].

General Statistics Office of Vietnam. (2024). *Vietnam Statistical Yearbook 2023*. https://www.gso.gov.vn/wp-content/uploads/2024/06/NIEN-GIAM-THONG-KE-2023_Ban-quyen.pdf [Accessed September 13, 2025].

Government of Vietnam. (2024). *Decision No. 1668/QĐ-TTg approving the adjustment of Hanoi's Master Plan to 2045 with a vision to 2065.* https://datafiles.chinhphu.vn/cpp/files/vbpq/2024/12/1668-ttg.signed.pdf [Accessed September 14, 2025].

Gunawan, Berawi, M. A., & Sari, M. (2020). *Optimizing Property Income in Transit Oriented Development: A Case Study of Jakarta TOD*. Civil Engineering and Architecture, 8(2), 136-143. https://doi.org/10.13189/cea.2020.080211 [Accessed September 15, 2025].

Guthrie, A., & Fan, Y. (2016). *Developers' perspectives on transit-oriented development*. Transport Policy, 51, 103-114. https://doi.org/10.1016/j.tranpol.2016.04.002 [Accessed September 19, 2025].

Global Property Guide. (2025). *Indonesia: Bali booms, Jakarta stable*. https://www.globalpropertyguide.com/Asia/Indonesia/Price-History [Accessed September 19, 2025].

Hà Nội Mới. (2025). *Metro Hà Nội phục vụ gần 4,8 triệu hành khách trong quý I 2025*. https://hanoimoi.vn/metro-ha-noi-phuc-vu-gan-4-8-trieu-hanh-khach-trong-quy-i-2025-698518.html [Accessed September 16, 2025].

Hanoi People's Committee. (2021). *Decision 4992/QD-UBND on adjustment to Hanoi Capital Construction Master Plan to 2030, vision to 2050*. https://hanoi.gov.vn/documents/10184/0/4992-QD-UBND.pdf [Accessed September 8, 2025].

Hanoi Rail Transit. (n.d.). *Line 2A Hanoi Metro*. https://hanoirailtransit.com/line-2a/ [Accessed September 17, 2025].

Harvard Law Review. (2022). *Addressing Challenges to Affordable Housing in Land Use Law: Recognizing Affordable Housing as a Right*.

https://harvardlawreview.org/print/vol-135/addressing-challenges-to-affordable-housing-in-land-use-law/ [Accessed September 10, 2025].

Hasibuan, H. S., & Mulyani, M. (2022). *Transit-Oriented Development: Towards Achieving Sustainable Transport and Urban Development in Jakarta Metropolitan, Indonesia*. Sustainability, 14(9), 5244. https://doi.org/10.3390/su14095244 [Accessed September 15, 2025].

Hasibuan, H. S., Koestoer, R. H., Permana, C. T., Danial, M. H., Marzukhi, M. A., & Elizandri, B. N. (2024). *The progression of transport infrastructures and Transit Oriented Development (TOD) areas in Jakarta and Kuala Lumpur suburban: Lessons from policy approach*. Journal of Infrastructure Policy and Development, 8(9), 6025-6025. https://doi.org/10.24294/jipd.v8i9.6025 [Accessed September 14, 2025].

Hilber, C. A. L., & Schöni, O. (2022). *Housing policy and affordable housing*. Oxford Research Encyclopedia of Economics and Finance. https://doi.org/10.1093/acrefore/9780190625979.013.829 [Accessed September 18, 2025].

Horak, M. (2021). *Building rapid transit in Canada: The problem of governance*. Anuario de Derecho Municipal, (14), 243-258. https://doi.org/10.37417/ADM/14-2020_09 [Accessed September 8, 2025].

Huang, T. W., Shyr, O. F., & Andersson, D. E. (2009). *The Good, the Bad, and the Ugly – The Successes and Failures of Transit-Oriented-Development in Taiwan during the Financial Crisis*. Pacific Rim Real Estate Society Conference. https://www.prres.org/uploads/746/1776/Huang_The_Successes_and_Failures_TODS_Taiwan.pdf [Accessed September 12, 2025].

Ibraeva, A., Correia, G. H. d. A., Silva, C., & Antunes, A. P. P. (2020). *Transit-oriented development: A review of research achievements and challenges*. Transportation Research Part A: Policy and Practice, 132, 110-130. https://doi.org/10.1016/j.tra.2019.10.018 [Accessed September 17, 2025].

Indonesia Legal Alert. (2025). *Tackling affordable housing shortage: President Prabowo's Three Million Homes initiative*. https://www.pwc.com/id/en/publications/legal/legal-alert-2025-37.pdf [Accessed September 15, 2025].

Infrastructure Hub. (2021). *Jakarta Mass Rapid Transit [Case study]*. GI Hub. https://infrastructuredeliverymodels.gihub.org/case-studies/jakarta-mass-rapid-transit/ [Accessed September 10, 2025].

ITDP. (2017). *Why TOD matters*. https://tod.itdp.org/why-tod-matters.html [Accessed August 29, 2025].

ITDP. (2021). *Lessons Learned from Jakarta's Journey to Integrated and Resilient Transport Systems*. https://itdp.org/wp-content/uploads/2021/11/MOBILIZE-Jakarta-Case-Study-11.16.21_pages.pdf [Accessed September 14, 2025].

Irsal, R. M., Hasibuan, H. S., & Azwar, S. A. (2022). *Spatial Modeling for Residential Optimization in Dukuh Atas Transit-Oriented Development (TOD) Area, Jakarta,*

Indonesia. Sustainability, 15(1), 530. https://doi.org/10.3390/su15010530 [Accessed September 14, 2025].

ITDP Indonesia. (2012). *Optimizing Transjakarta Network through Direct Service*. https://itdp-indonesia.org/2012/10/optimizing-transjakarta-network-through-direct-service/ [Accessed September 15, 2025].

Jakarta Globe. (2023). *Newly-Launched LRT Carries Over 30,000 Passengers Daily*. https://jakartaglobe.id/business/newlylaunched-lrt-carries-over-30000-passengers-daily [Accessed September 14, 2025].

Jakarta Investment Centre. (2025). *Green Project Investment Potential - Transit Oriented Development (TOD)*. https://invest.jakarta.go.id/news/65/green-project-investment-potential-transit-oriented-development-tod [Accessed September 15, 2025].

Jakarta.go.id. (2023). *Jaklingko. (English version)*. https://www.jakarta.go.id/jaklingko [Accessed September 11, 2025].

JakLingko Indonesia. (n.d.). *Jaklingkoindonesia.co.id*. https://www.jaklingkoindonesia.co.id/en [Accessed September 10, 2025].

Khanh, H. (2024). *Rising costs, stalled projects: The crisis in Hanoi's real estate market*. VietNamNet News. https://vietnamnet.vn/en/rising-costs-stalled-projects-the-crisis-in-hanoi-s-real-estate-market-2346362.html [Accessed September 14, 2025].

Khanh, K. (2023). *TOD model for solving urban traffic challenges in Hanoi*. Hanoitimes.vn. https://hanoitimes.vn/tod-model-for-solving-urban-traffic-challenges-in-hanoi-324464.html [Accessed September 15, 2025].

Kinh tế Đô thị. (2024). *Vương quốc Anh hỗ trợ Hà Nội nghiên cứu phát triển TOD*. https://kinhtedothi.vn/vuong-quoc-anh-ho-tro-ha-noi-nghien-cuu-phat-trien-tod.html [Accessed September 17, 2025].

Knight Frank Indonesia. (n.d.). *North-South Line (Phase 1), MRT (Mass Rapid Transit)*. https://kfmap.asia/mrt/north-south-line-phase-1-10236 [Accessed September 13, 2025].

Lao Động. (2024). *Reasons why the number of cars in Hanoi nearly doubled after 5 years, surpassing 1 million vehicles*. https://laodong.vn/giao-thong/nguyen-nhan-oto-o-ha-noi-tang-gan-gap-doi-sau-5-nam-dat-hon-1-trieu-xe-1343232.ldo [Accessed September 9, 2025].

Lee, J., Arts, J., & Vanclay, F. (2022). *Investigating institutional barriers and opportunities to an integrated approach for transport and spatial development: Mega urban transport development in a rapidly developing city, Seoul*. Journal of Urban Affairs, 46(1), 40-62. https://doi.org/10.1080/07352166.2021.2021086 [Accessed September 10, 2025].

Marsden, G., & May, A. D. (2006). *Do institutional arrangements make a difference to transport policy and implementation? Lessons for Britain*. Environment and Planning C: Government and Policy, 24(5), 771-789. https://doi.org/10.1068/c0543 [Accessed September 10, 2025].

Mathur, S., & Gatdula, A. (2021). *Addressing barriers to the use of value capture to fund transit-oriented developments*. Case Studies on Transport Policy, 9(2), 511-527. https://doi.org/10.1016/j.cstp.2021.02.007 [Accessed September 10, 2025].

Nadeem, M., & Matsuyuki, M. (2025). *Institutional challenges and opportunities for encouraging transit-oriented development with bus rapid transit in Lahore, Pakistan*. Transportation Research Interdisciplinary Perspectives, 31, 101431. https://doi.org/10.1016/j.trip.2025.101431 [Accessed September 17, 2025].

Nam, N. (2025). *Tập trung tháo gỡ khó khăn, bảo đảm hiệu lực, hiệu quả của mô hình chính quyền địa phương 02 cấp*. Tạp chỉ Tổ chức Nhà nước và Lao động. https://tcnnld.vn/news/detail/69366/Tap-trung-thao-go-kho-khan-bao-dam-hieu-luc-hieu-qua-cua-mo-hinh-chinh-quyen-dia-phuong-02-cap.html?fbclid=IwY2xjawNQWNBleHRuA2FlbQIxMABicmlkETFKT2liamN5WnExajg0T2U5AR6eDefjO0AHORc_RL-3n1B3liEG3bLALF55Krn2Xq_jvX4BHBgDdYq2Pbvcnw_aem_aZPKDFKgiqFB5GF9CbOPMQ [Accessed September 13, 2025].

News Desk. (2017). *Third TOD project to be constructed at Senen Station*. The Jakarta Post. https://www.thejakartapost.com/news/2017/10/09/third-tod-project-to-be-constructed-at-senen-station.html [Accessed September 16, 2025].

Ngoc, A. M., Hung, K. V. & Tuan, V. A. (2017). *Towards the Development of Quality Standards for Public Transport Service in Developing Countries: Analysis of Public Transport Users' Behavior*. Transportation Research Procedia, 25, 4564-4583. https://doi.org/10.1016/j.trpro.2017.05.354 [Accessed September 11, 2025].

Ngoc, P. T. K., & Ngoc, A. M. (2022). *Motivations and barriers to using high-speed rail: An application of conjoint analysis - Insights from Vietnam*. Journal of Transport and Supply Chain Management, 16(0), 705. https://doi.org/10.4102/jtscm.v16i0.705 [Accessed September 15, 2025].

Nguyen, M. H., & Pojani, D. (2018). *Why do some BRT systems in the Global South fail to perform or expand? In Preparing for the new era of transport policies: Learning from experience*. Elsevier. https://doi.org/10.1016/bs.atpp.2018.07.005 [Accessed September 9, 2025].

Nhân Dân Online. (2024). *Transit-oriented development - an impetus for Hanoi's urban development*. https://en.nhandan.vn/transit-oriented-development-an-impetus-for-hanois-urban-development-post141625.html [Accessed September 10, 2025].

Oktafianus, C., Fachrial, P., & Kania, D. D. (2025). *Analysis of The Implementation of Transit Oriented Development (TOD) Policies to Optimize the Integration of Public Transportation Modes*. Dinasti International Journal of Digital Business Management (December 2024 - January 2025), 6(1). https://doi.org/10.38035/dijdbm.v6i1.3966 [Accessed September 10, 2025].

Padeiro, M., Louro, A., & Costa, N. (2019). *Transit-oriented development and gentrification: A systematic review*. Transport Reviews, 39(1), 1-22. https://doi.org/10.1080/01441647.2019.1649316 [Accessed September 19, 2025].

Pasha, R. F. (2024). *Why Are Many Jakartans Still Hesitant to Use Public Transport?*. Indonesia Expat. https://indonesiaexpat.id/outreach/observations/why-are-many-jakartans-still-hesitant-to-use-public-transport/ [Accessed September 4, 2025].

Pojani, D., & Wu, I. (2016). *Obstacles to the creation of successful bus rapid transit systems: The case of Bangkok*. Research in Transportation Economics, 60, 44-53. https://doi.org/10.1016/j.retrec.2016.05.001 [Accessed September 9, 2025].

Prime Minister of Vietnam. (2024). *Quyết định 1569/QĐ-TTg phê duyệt Quy hoạch Thủ đô Hà Nội thời kỳ 2021-2030, tầm nhìn đến năm 2050*. https://thuvienphapluat.vn/van-ban/Xay-dung-Do-thi/Quyet-dinh-1569-QD-TTg-2024-phe-duyet-Quy-hoach-Thu-do-Ha-Noi-thoi-ky-2021-2030-635704.aspx [Accessed September 16, 2025].

Putri, L. M. (2024). *MRT Jakarta jadikan halte Dukuh Atas sebagai hub 6 moda transportasi*. Antara News. https://www.antaranews.com/berita/4188591/mrt-jakarta-jadikan-halte-dukuh-atas-jadi-hub-enam-moda-transportasi [Accessed September 15, 2025].

National Assembly of Vietnam. (2024a). *Luật Đất đai 2024*. https://chinhphu.vn/?pageid=27160&docid=211189&classid=1&typegroupid=3 [Accessed September 13, 2025].

National Assembly of Vietnam. (2024b). *Luật Thủ đô*. https://thuvienphapluat.vn/van-ban/Bo-may-hanh-chinh/Luat-Thu-do-2024-575158.aspx [Accessed September 16, 2025].

National Assembly of Vietnam. (2025a). *Resolution 188/2025/QH15 on piloting special mechanisms for urban railway development in Hanoi and Ho Chi Minh City.* https://thuvienphapluat.vn/van-ban/EN/Giao-thong-Van-tai/Resolution-188-2025-QH15-special-policies-for-the-development-of-the-urban-railway-network-in-Hanoi/645552/tieng-anh.aspx [Accessed September 8, 2025].

National Assembly of Vietnam. (2025b). *Luật đường sắt*. https://datafiles.chinhphu.vn/cpp/files/vbpq/2025/7/95qh.signed.pdf [Accessed September 16, 2025].

Ramos, S., Vicente, P., Passos, A. M., Costa, P., & Reis, E. (2019). *Perceptions of the public transport service as a barrier to the adoption of public transport: A qualitative study*. Social Sciences, 8(5), 150. https://doi.org/10.3390/socsci8050150 [Accessed September 9, 2025].

Redman, L., Friman, M., Gärling, T., & Hartig, T. (2013). *Quality attributes of public transport that attract car users: A research review*. Transport Policy, 25, 119-127. https://doi.org/10.1016/j.tranpol.2012.11.005 [Accessed September 8, 2025].

Rodriguez, D. A., & Mojica, C. H. (2009). *Capitalization of BRT network expansions affects into prices of non-expansion areas*. Transportation Research Part A: Policy and Practice, 43(5), 560-571. https://doi.org/10.1016/j.tra.2009.02.003 [Accessed September 18, 2025].

Sefriyadi, I., Andani, I. G. A., Raditya, A., Belgiawan, P. F. and Windasari, N. A. (2023). *Private car ownership in Indonesia: Affecting factors and policy strategies*. Transportation Research Interdisciplinary Perspectives, 19(100796), p.100796. https://doi.org/10.1016/j.trip.2023.100796 [Accessed September 10, 2025].

Sharma, S. N., & Dehalwar, K. (2025). *Assessing the Transit-Oriented Development and Travel Behavior of the Residents in Developing Countries: A Case of Delhi, India*. Journal of Urban Planning and Development, 151(3). https://doi.org/10.1061/JUPDDM.UPENG-5468 [Accessed September 10, 2025]

Shopify API. (2024). *Are Jakarta property prices going up in 2025?* Bamboo Routes. https://bambooroutes.com/blogs/news/jakarta-price-forecasts [Accessed September 14, 2025].

SMI Insight. (2019). *Transit-Oriented Development Q4 - 2019.* https://www.ptsmi.co.id/cfind/source/files/smi-insight-2019-transit-oriented-development.pdf [Accessed September 14, 2025].

Soh, K. L., Wong, W. P., Chong, C. L., & Hiew, Y. H. (2014). *Improving traffic infrastructure in a developing country: An investigation into the usage of public bus transport in Malaysia*. Industrial Engineering & Management Systems, 13(2), 172-184. https://doi.org/10.7232/iems.2014.13.2.172 [Accessed September 11, 2025].

Son, P. V. H. & Duong, L. T. (2025a). *Fuzzy evaluation of institutional leverage points for TOD implementation: The case of Vietnam*. Case Studies on Transport Policy, 22, 101613. https://doi.org/10.1016/j.cstp.2025.101613 [Accessed September 14, 2025].

Son, P. V. H. & Duong, L. T. (2025b). *A multi-criteria approach for prioritizing transit-oriented development barriers in Vietnam*. Innovative Infrastructure Solutions, 10, 208. https://doi.org/10.1007/s41062-025-02023-9 [Accessed September 13, 2025].

Staricco, L., & Vitale Brovarone, E. (2018). *Promoting TOD through regional planning: A comparative analysis of two European approaches*. Journal of Transport Geography, 66, 45-52. https://doi.org/10.1016/j.jtrangeo.2017.11.011 [Accessed September 19, 2025].

Sun, S., Fang, D., & Cao, J. (2020). *Exploring the asymmetric influences of stop attributes on rider satisfaction with bus stops*. Travel Behaviour and Society, 19, 162-169. https://doi.org/10.1016/j.tbs.2020.01.004 [Accessed September 10, 2025].

Syahrani, A. (2025). *How Are Electric Buses Progressing Under Indonesia's National Electrification Commitment?*. Institute for Transportation and Development Policy. https://itdp-indonesia.org/2025/07/how-are-electric-buses-progressing-under-indonesias-national-electrification-commitment/ [Accessed September 13, 2025].

Tan, W. G. Z., Janssen-Jansen, L. B., & Bertolini, L. (2014a). *The role of incentives in implementing successful transit-oriented development strategies.* Urban Policy and Research, 32(1), 33-51. https://doi.org/10.1080/08111146.2013.832668 [Accessed September 18, 2025].

Tan, W. G. Z., Janssen-Jansen, L. B., & Bertolini, L. (2014b). *Identifying and conceptualising context-specific barriers to transit-oriented development strategies: The case of the Netherlands*. Town Planning Review, 85(5), 583-610. https://doi.org/10.3828/tpr.2014.38 [Accessed September 9, 2025].

Thang, T. (2023). *Bài 1. Hà Nội cần được phân quyền mạnh để phát triển mô hình TOD*. Báo Điện tử Tuổi trẻ Thủ đô. https://phapluat.tuoitrethudo.vn/bai-1-ha-noi-can-duoc-phan-quyen-manh-de-phat-trien-mo-hinh-tod-87126.html?fbclid=IwY2xjawNskpJleHRuA2FlbQIxMABicmlkETFFUnNSbmNmTmNMWVBnQTFVAR6kw5KPVfC_J7AwBkGeImJIt6pBGb8oGoRnfEQX8iSD7ve7IUrQoKS_sD8HIw_aem_Xvogfcj-z-nOBsdNtYlu4A [Accessed September 10, 2025].

The Jakarta Post. (2019). *Officials suggest bylaw, new authority to accelerate TOD projects*. https://www.thejakartapost.com/news/2019/11/14/officials-suggest-bylaw-new-authority-accelerate-tod-projects.html [Accessed September 11, 2025].

Tiền Phong. (2025). *Hà Nội dừng xe máy xăng trong vành đai 1 từ 1/7/2026: Người dân đi bằng gì?*. https://tienphong.vn/ha-noi-dung-xe-may-xang-trong-vanh-dai-1-tu-172026-nguoi-dan-di-bang-gi-post1759869.tpo [Accessed September 13, 2025].

Toan, N. Q., An, L. T. H. & Ngoc, N. B. (2014). *Time Delays Causes in Construction Projects in Hanoi, Vietnam: Contractors' Perspectives*. USMCA 2014: 13th International Symposium on New Technologies for Urban Safety of Mega Cities in Asia (Seiken Sympsium 78), ISBN 4-903661-73-3, 291–299. https://www.academia.edu/13090426/Time_Delays_Causes_in_Construction_Projects_in_Hanoi_Vietnam_Contractors_Perspectives?fbclid=IwY2xjawNQWwJleHRuA2FlbQIxMABicmlkETFKT2liamN5WnExajg0T2U5AR7eNcsLSmegPJO7DTs_R2fPYI6hri6J53i3ExW5G95WkMWZfi5xKFDobaN2Lg_aem_Xh60kOgNargdJI6Db18maQ [Accessed September 15, 2025].

Toan, T. D. (2022) *Transit-oriented development for Hanoi sustainable urban development*. CIGOS 2021, Emerging Technologies and Applications for Green Infrastructure, 1457-1465. https://doi.org/10.1007/978-981-16-7160-9_147 [Accessed September 8, 2025].

Tsumita, N., Kikuchi, H., Vichiensan, V., Fillone, A., Tuan, V. A., Linh, H. T., Pawar, D. S., & Fukuda, A. (2023). *Urban railway network expansion on transit oriented development: Improvement in accessibility in four Asian developing cities*. Asian Transport Studies, 9(2185-5560), 100097. https://doi.org/10.1016/j.eastsj.2023.100097 [Accessed September 8, 2025].

UN-Habitat. (2022). *Envisaging the future of cities: World Cities Report 2022*. https://unhabitat.org/sites/default/files/2022/06/wcr_2022.pdf [Accessed September 15, 2025].

VnEconomy. (2024). *How to lower housing prices?*. https://en.vneconomy.vn/how-to-lower-housing-prices.htm [Accessed September 9, 2025].

Vietnamnet. (2025). *New tax law expected to stop land speculation, inefficient use of land*. https://vietnamnet.vn/en/new-tax-law-expected-to-stop-land-speculation-inefficient-use-of-land-2407892.html [Accessed September 12, 2025].

Việt Nam News. (2025). *HCM City prioritises development of affordable housing near workplaces, transit hubs*. https://vietnamnews.vn/economy/1719878/hcm-city-prioritises-development-of-affordable-housing-near-workplaces-transit-hubs.html [Accessed September 15, 2025].

VnExpress. (2023). *Mạng lưới BRT lớn nhất thế giới ở Indonesia*. https://vnexpress.net/mang-luoi-brt-lon-nhat-the-gioi-o-indonesia-4683571.html [Accessed September 14, 2025].

VnExpress. (2024). *Đường sắt đô thị sẽ thay thế tuyến buýt nhanh Kim Mã - Yên Nghĩa*. https://vnexpress.net/duong-sat-do-thi-se-thay-the-tuyen-buyt-nhanh-kim-ma-yen-nghia-4734719.html [Accessed September 13, 2025].

VnExpress. (2025). *How petrol motorbikes drive Hanoi's air pollution*. https://e.vnexpress.net/news/news/traffic/how-petrol-motorbikes-drive-hanoi-s-air-pollution-4914865.html [Accessed September 13, 2025].

von Behren, S., Minster, C., Esch, J., Hunecke, M., Vortisch, P., & Chlond, B. (2018). *Assessing car dependence: Development of a comprehensive survey approach based on the concept of a travel skeleton*. Transportation Research Procedia, 32, 607-616. https://doi.org/10.1016/j.trpro.2018.10.015 [Accessed September 8, 2025].

VSE Lawyers. (2024). *Some highlights and impacts of the 2024 Land Law*. https://vselaw.com.vn/some-highlights-and-impacts-of-the-2024-land-law-a775.html [Accessed September 11, 2025].

Wahyudiarto, F. (2025). *Determinants of User Satisfaction and Loyalty in Jakarta's Light Rail Transit: The Role of Environment, Vehicle Characteristics, Safety, and Cost*. Journal of Information Systems Engineering and Management, 10(9s), 736-750. https://doi.org/10.52783/jisem.v10i9s.1300 [Accessed September 14, 2025].

World Bank. (2020). *Indonesia Public Expenditure Review: Spending for Better Results*. https://www.worldbank.org/en/country/indonesia/publication/indonesia-public-expenditure-review [Accessed September 10, 2025].

World Bank (2022). *Vietnam Urbanization Report - Technical Assistance Report*. https://documents1.worldbank.org/curated/en/225041468177548577/pdf/669160ESW0P1130Review000Full0report.pdf [Accessed September 15, 2025].

World Bank. (2024a). *Concept masterplan development for Ngoc Hoi railway station complex.* https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099060825215040089 [Accessed September 6, 2025].

World Bank. (2024b). *Financing Climate Action for Transportation in Developing Countries.*.https://www.greenfinanceplatform.org/sites/default/files/downloads/resource/Finance%20and%20Transport.pdf [Accessed September 14, 2025].

World Bank. (2025). *Concept masterplan development for Ngoc Hoi railway station complex.*.https://documents1.worldbank.org/curated/en/099060825215035157/pdf/P181165-c9363e5c-7dcc-44b2-82ae-cde2a55f1156.pdf [Accessed September 8, 2025].

Yahia, O., Chohan. A. H., Arar, M., & Awad, J. (2025). *Toward Sustainable Urban Mobility: A Systematic Review of Transit-Oriented Development for the Appraisal of Dubai Metro Stations*. Smart Cities 2025, 8(1), 21. https://doi.org/10.3390/smartcities8010021 [Accessed September 11, 2025].

Yen, B. T. H., Feng, C. M., & Lee, T. C. (2023). *Transit-oriented development strategy in Taiwan: An application of land value capture*. Asian Transport Studies, 9, 100094. https://doi.org/10.1016/j.eastsj.2022.100094 [Accessed September 18, 2025].

Zainuddin, N. S., Alias, A. H., Bakar, N. A., & Haron, N. A. (2024). *Unlocking the potential of BIM and VR integration to address construction challenges in Malaysia's building industry: A literature review*. Journal of Sustainable Civil Engineering and Technology, 3(1), 10-38. https://doi.org/10.24191/jscet.v3i1.10-38 [Accessed September 10, 2025].

Zhang, X., Luo, W., & Xiang, D. (2022). *Political turnover and innovation: Evidence from China*. Journal of Chinese Political Science, 1-25. https://doi.org/10.1007/s11366-022-09800-8 [Accessed September 10, 2025].