



## **Enhancing Public Transit Ridership through Mixed Use: A Case Study of Pulo Gebang Terminal**

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**Abstract**

Pulo Gebang Terminal, the largest bus terminal in Indonesia and Southeast Asia, continues to face challenges in attracting ridership. Despite its modern infrastructure, passenger levels remain relatively low due to concerns about safety, comfort, and competition from private vehicles. This study aims to identify and propose effective strategies to increase ridership through a mixed-use development approach. Using a quantitative descriptive design combined with qualitative insights, the research employed stakeholder interviews, user surveys, direct observations, and secondary data analysis. The SWOT analysis revealed both internal strengths, such as the integration of health and administrative services, and external opportunities, such as the use of multipurpose spaces, alongside critical weaknesses related to security and service quality. Findings indicate that developing multifunctional facilities, including retail, offices, hotels, entertainment venues, and essential public services, can enhance user comfort, improve service quality, and strengthen the terminal's integration with its surrounding urban environment. The study contributes to the discourse on sustainable transit-oriented development by demonstrating how mixed-use terminal design can increase ridership while optimizing urban land use. The results provide practical recommendations for policymakers and terminal managers in enhancing Pulo Gebang's role as a key transportation hub and multifunctional urban center.

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### **INTRODUCTION**

The growth that a city experiences will show its impact on the pattern of life of people in various fields or aspects of life that accompany the city (Cerisola & Panzera, 2022; Muradi, 2005; Rustiadi et al., 2021). Urban spatial planning is a continuous and dynamic process that requires constant adjustment to the changing needs of the city (Budiharjo, 1997; Cai et al., 2023). Among its crucial aspects are spatial planning and transportation policies, which are inherently interrelated, spatial planning determines the allocation of land for various activities, while transportation provides the network that physically connects these activity centers within the city. In this context, transportation cannot be separated from the role of terminals, which serve as hubs for public vehicles to organize arrivals and departures (Kerzhner, 2023), facilitate the movement of passengers and goods (Rześny-Cieplińska, 2023), and enable the transfer between different modes of transportation (Krstić et al., 2023).

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The terminal has a very important role in urban planning management because it will influence the flow of traffic and is expected to become a center of activity (Meka & Sugiarto, 2024), since there are at least three elements that are interconnected and require the existence of a terminal, namely, the passengers, government and public transport operators (Hutasuhut, 2016; Nugraha, 2022). Despite the construction of many type-A terminals in Indonesia, complete with modern facilities, these terminals have not become the preferred choice for the public (Oktayasa & Zetha, 2021). Key barriers include locations that are often far from city centers and inadequate supporting access, which result in underutilization and low passenger volumes (Adolph, 2016). Consequently, public transport operators frequently bypass the terminals and operate outside their premises. In such cases, mode transfers occur mainly on surrounding roads rather than within the terminal, limiting the use of commercial areas inside the facility (Adamos & Nathanael, 2022; Blow, 2005; Boc et al., 2023). Furthermore, parking spaces within terminals are often appropriated for market or school activities, leaving commercial units vacant. This prolonged vacancy leads to neglected kiosks, reduced revenue, and deteriorating infrastructure, further undermining the terminal's intended function.

To address these challenges, strategic efforts are needed to restore the terminal's role in managing traffic flow and enhancing mobility. One promising approach is the adoption of a mixed-use development concept, which allows terminals to accommodate not only transport functions but also commercial, office, hospitality, and service activities (Oktayasa & Zetha, 2021). Although many terminals already provide commercial zones, such as ticket counters and retail spaces, these facilities are often underutilized. For example, bus operators frequently sell tickets at kiosks located outside the terminal, enabling passengers to board directly without entering the terminal. As a result, terminal facilities, including commercial areas, remain largely vacant, diminishing both functionality and economic viability. Developing a mixed-use terminal therefore requires active collaboration between government and private stakeholders to ensure that terminals evolve into multifunctional hubs capable of integrating various urban activities.

This approach is particularly relevant for Pulo Gebang Terminal in East Jakarta the largest type-A bus terminal in Southeast Asia, inaugurated on 28 December 2016 which was designed to embody a modern terminal concept. By adopting a mixed-use framework, Pulo Gebang can strengthen its role as a transport hub while also generating economic opportunities, improving land-use efficiency, and providing a more attractive and convenient experience for commuters. Changing the terminal precinct into a mixed-use area has the potential to improve the surrounding environment, enhance access, and reduce private vehicle use (Cervero, 2004). The role of terminals is no longer limited to functioning as transfer points but can also extend to becoming multifunctional centers that accommodate public services, commercial activities, and social facilities such as open spaces for meetings or recreation (Bertolini, L., Curtis, C., & Renne, 2012). International examples demonstrate the success of such an approach. Shibuya Station in Tokyo, for instance, exemplifies how integrating commercial, office, leisure, and residential uses within a transport hub significantly increases passenger volumes by encouraging local residents to rely more on public transportation (Suzuki, H., Cervero, R., & Iuchi, n.d.). More broadly, mixed-use development aims to enhance land-use efficiency, facilitate social interaction, and shorten travel distances; several studies have confirmed that integrating mixed-use functions with transit can increase ridership and reduce congestion (Calthorpe, Newman & Kenworthy, 1999).

However, the majority of empirical studies on mixed-use development and transit ridership have focused on railway stations and advanced urban contexts. Research specifically examining the application of mixed-use concepts to large-scale bus terminals, especially in developing countries like Indonesia, remains limited. In Indonesia, policy discussions on bus terminals tend to emphasize institutional and operational issues, such as fragmented feeder services and the emergence of informal terminals, rather than land-use strategies that could strengthen demand for public transport. This leaves a significant gap in the literature regarding how mixed-use development can be implemented in bus terminals to improve ridership and stimulate urban vitality.

This study seeks to address that gap by examining the mixed-use development of Pulo Gebang Terminal and its potential to increase public transport ridership. The novelty of this research lies in three main aspects. First, it expands the literature on transit-oriented development and mixed-use strategies by focusing on a large-scale intercity bus terminal in the Global South,

where empirical studies are scarce. Second, it integrates multiple perspectives by combining passenger survey data, stakeholder interviews, and land-use analysis to uncover the mechanisms through which mixed-use features influence ridership. Third, it provides context-specific policy insights, outlining feasible physical designs, operational improvements, and governance models such as public-private partnerships that can guide policymakers and terminal managers in Jakarta and other Indonesian cities. By filling this gap, the study not only contributes to academic discourse but also offers practical strategies for transforming bus terminals into multifunctional urban hubs that enhance accessibility, reduce private vehicle dependence, and generate broader socio-economic benefits.

## METHOD

This research was conducted at Pulo Gebang Terminal, Jakarta, using a quantitative descriptive design with SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis as the primary analytical framework. The purpose of this method was to gain a comprehensive understanding of stakeholders' perceptions and experiences, and to explore the potential of the terminal as a mixed-use facility that integrates transportation with social, governmental, and economic functions.

The research population was divided into internal and external groups. The internal population consisted of terminal employees and managers, while the external population comprised public transport users, business partners, government representatives, and the surrounding community. Respondents were selected using purposive sampling, focusing on individuals with direct involvement in or frequent interactions with the terminal. The final respondents included terminal managers and staff, public transport users, local residents, and government officials relevant to transport and spatial planning.

Data collection was conducted through three complementary techniques. First, structured interviews were carried out using open-ended questions to explore SWOT-related themes such as accessibility, service quality, integration of terminal functions, socio-economic impacts, and government involvement. Second, direct observations were undertaken to examine passenger flows, user interactions, infrastructure conditions, and the utilization of commercial spaces within the terminal. All observations were systematically recorded in field notes. Third, a document review was performed, covering operational reports, government regulations, and related studies to provide supporting evidence.

The analysis proceeded in two main stages. In the first stage, data were compiled into a SWOT matrix to classify internal and external factors affecting the terminal. In the second stage, the SWOT results were further interpreted using a mixed-use development approach. This involved mapping the identified SWOT elements into three functional domains:

1. Social functions – inclusive public spaces, cultural activities, and community interaction;
2. Governmental functions – policy support, accessibility of public services, and regulatory frameworks;
3. Economic functions – optimization of commercial areas, stimulation of local businesses, and attraction of investment.

By integrating SWOT outcomes with these domains, the research formulated strategic directions for positioning Pulo Gebang Terminal as a mixed-use hub, rather than solely a transportation node. To ensure reliability and validity, triangulation was applied by comparing findings from interviews, observations, and document reviews.

## RESULTS AND DISCUSSION

### Results

The SWOT analysis identified a number of internal and external factors that influence the potential of Pulo Gebang Terminal to be developed as a mixed-use hub.

From the internal perspective, several strengths emerged. A total of 75% of respondents stated that access to health services located in the terminal area was easy, while 80% agreed that these services had a positive influence on public transport use. In addition, 55% of respondents

reported using Samsat services, indicating public trust in the facilities provided at the terminal. Furthermore, 65% of respondents used public transportation to commute to work, demonstrating a consistent demand for the terminal's services.

At the same time, some weaknesses were identified. About 25% of respondents never visited the health center, while 20% never utilized the administrative services. More concerning, 60% of respondents perceived the terminal environment as unsafe, and 35% considered the facilities inadequate. In addition, 30% found public transport services uncomfortable, which may deter new users.

In terms of external factors, several opportunities were highlighted. Growing health awareness and promotional campaigns could increase visits to the terminal's health center. The availability of multipurpose spaces offers the potential for exhibitions, community events, and other activities that can attract more users. Service integration, such as combining administrative and health services, was also seen as a way to improve convenience and efficiency.

Nevertheless, several threats exist. Competing services outside the terminal are often perceived as safer and more convenient. Persistent safety issues can undermine public trust, while long travel times and congestion, 50% of respondents reported trips exceeding 1.5 hours, pose additional barriers. Moreover, the availability of private vehicles provides an attractive alternative to inefficient public transport services.

**Table 1.** Summary of SWOT Analysis for Pulo Gebang Terminal

Factors	Findings
Strengths	Easy access to health services; strong influence of public services on transport use; high Samsat usage; steady commuter demand
Weaknesses	Low frequency of visits; safety concerns; limited comfort; inadequate facilities
Opportunities	Growing health awareness; improved facilities and safety; community events in multipurpose buildings; service integration
Threats	Competition from other service providers; safety issues; congestion and long travel times; reliance on private vehicles

## Discussions

The results confirm that Pulo Gebang Terminal has significant potential to be repositioned as a mixed-use hub that supports not only transportation but also social, governmental, and economic functions. This reflects the broader discourse on Transit-Oriented Development (TOD), where terminals are no longer perceived merely as points of transfer but as urban activity centers (Pimenta & Kamruzzaman, 2024; Stangel & Drobniak, 2024)

### *Strengths and Opportunities: Leveraging the Mixed-Use Potential*

The strengths identified particularly the existence of health services and Samsat facilities suggest that the terminal is already functioning as a public service center. This creates an opportunity to anchor ridership growth by integrating essential daily services within the terminal. Comparable international examples, such as Shibuya Station in Tokyo, demonstrate how transport hubs with diverse facilities attract consistent user flows and reduce reliance on private vehicles (Dai et al., 2023). Similarly, that land-use integration at transport nodes stimulates both transit demand and local economic vitality (Cai et al., 2023).

The opportunities found in this study, such as programming multipurpose buildings for events or community gatherings, align with the principles of placemaking in urban design. By activating the terminal precinct through cultural and social events, Pulo Gebang could foster a stronger sense of community ownership, thereby encouraging greater utilization of public transport services.

### *Weaknesses and Threats: Barriers to Implementation*

Despite these opportunities, weaknesses such as safety concerns and inadequate facilities remain substantial barriers. Research Sogbe et al. (2025) emphasizes that perceived safety and comfort are critical determinants of user satisfaction in transport terminals. If users feel unsafe,

they are likely to bypass the terminal entirely, opting instead for informal alternatives. Moreover, poor infrastructure maintenance can perpetuate negative perceptions, undermining attempts at repositioning the terminal as a mixed-use hub.

Threats such as competition from alternative service providers and the persistent preference for private vehicles further complicate the situation. In Indonesia, where car ownership continues to rise, the effectiveness of mixed-use development in terminals depends heavily on the attractiveness of public transport as a viable alternative (Sefriyadi et al., 2023; Widita et al., 2024). Without improvements in efficiency and convenience, the integration of mixed-use functions may not be sufficient to significantly increase ridership.

#### *Strategic Implications*

The SWOT matrix provides a foundation for formulating strategies to develop Pulo Gebang Terminal into a mixed-use hub.

**Table 2.** SWOT Matrix and Strategic Recommendations

Strategy Type	Combination	Strategic Recommendations
SO (Strengths – Opportunities)	Leverage strengths to capitalize on opportunities	<ul style="list-style-type: none"> <li>- Integrate health and Samsat services with community activities.</li> <li>- Maximize multipurpose building use (exhibitions, bazaars, cultural events).</li> <li>- Promote the terminal as a one-stop service center combining transport, health, administrative, and retail functions.</li> </ul>
WO (Weaknesses – Opportunities)	Overcome weaknesses by exploiting opportunities	<ul style="list-style-type: none"> <li>- Address safety concerns with better lighting, CCTV, and security personnel.</li> <li>- Upgrade waiting rooms, sanitation, and accessibility.</li> <li>- Rebrand the terminal as a safe and welcoming environment through events and health campaigns.</li> </ul>
ST (Strengths – Threats)	Use strengths to minimize threats	<ul style="list-style-type: none"> <li>- Differentiate the terminal by emphasizing Samsat and health services.</li> <li>- Improve reliability and connectivity to serve commuters.</li> <li>- Position the terminal as an official, secure, and convenient hub to counter informal services.</li> </ul>
WT (Weaknesses – Threats)	Defensive strategies to reduce weaknesses and avoid threats	<ul style="list-style-type: none"> <li>- Launch a comprehensive safety improvement program.</li> <li>- Improve service efficiency and reduce congestion to compete with private vehicles.</li> <li>- Collaborate with local communities to prevent misuse of terminal space.</li> </ul>

These strategies highlight the importance of adopting a mixed-use development approach that integrates social, governmental, and economic functions while addressing safety, efficiency, and user trust.

#### *Contribution to Knowledge and Policy*

This study expands the scope of mixed-use development research, by examining its application to a large intercity bus terminal in Indonesia. It provides context-specific evidence that mixed-use strategies are not only feasible but also essential in developing countries where terminals face underutilization. For policymakers, the findings emphasize the need to shift terminal planning from a supply-driven model, which prioritizes infrastructure construction, to a demand-driven and integrated approach that accounts for user perceptions and local community needs. For terminal managers, collaboration with private partners through public-private partnership (PPP) schemes can be a viable strategy to revitalize commercial spaces and sustain mixed-use functions.

## **LIMITATIONS**

This study has several limitations that should be acknowledged. First, the analysis was conducted using a quantitative descriptive approach combined with SWOT analysis, which provides valuable insights into stakeholder perceptions but does not measure causal relationships or long-term behavioral changes in ridership. Second, the data were collected primarily through interviews, observations, and surveys within the Pulo Gebang Terminal context; as such, the findings may not be fully generalizable to other terminals in Indonesia with different socio-economic or spatial characteristics. Third, the study focused more on the perception of users and stakeholders rather than on empirical ridership data or financial feasibility, which limits the ability to assess the direct economic impacts of mixed-use development. Finally, while the SWOT analysis offers a useful framework for identifying strengths, weaknesses, opportunities, and threats, it is inherently subjective and relies on the researcher's interpretation, which may influence the weighting of factors.

Future studies could address these limitations by employing longitudinal data collection to measure actual changes in ridership after implementing mixed-use strategies, applying comparative analysis across multiple terminals, and integrating economic modeling or GIS-based spatial analysis to provide more comprehensive evidence for policy and planning decisions.

## **CONCLUSION**

According to the results of the SWOT analysis carried out in this research, it was found that the development of Pulo Gebang Terminal with a mixed-use concept, that is, combining or uniting social functions, government functions and economic functions, it is clear that there is great potential that can implement the Pulo Gebang terminal in an effort to increase the number of passengers, especially in terms of improving public services, not only the function of the terminal in general but also the function of the community around Pulo Gebang Terminal. The results of the evaluation of internal and external factors provide very important information about the state of the Pulo Gebang Terminal and also show things that need to be improved and developed to attract public transportation users.

According to the analysis carried out, the Pulo Gebang Terminal has the potential to increase public transport ridership and strengthen its role as a transportation hub and center of social and economic activity for the surrounding community. This shows that it is very important to develop a terminal that is capable of meeting both the transportation needs and the needs of local communities. If internal strengths are combined with external opportunities, the development of Pulo Gebang Terminal works well. If well integrated, improving existing transportation facilities at the terminal will increase public perception, and public trust can help increase the number of passengers arriving at the terminal.

The mixed-use development of Pulo Gebang Terminal will be successful by combining internal strengths with external opportunities. Improvements to existing transportation facilities at the terminal, if properly integrated, will result in increased public perception, meaning that public trust is one of the elements that can increase passenger volume at the terminal. The construction of Pulo Gebang Terminal should focus on improving the safety and facilities of the terminal to directly increase the convenience of users, as well as good quality facilities to increase the number of users of the terminal. The combination of administrative and health services at the terminal will also increase sales value and promote public transportation that the government has prepared. Basically, this strategy will make Pulo Gebang Terminal not only a transit location but also a center for social, government, and development activities.

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