*International Journal of Latest Engineering and Management Research (IJLEMR)*
*ISSN: 2455-4847*
*www.ijlemr.com || Volume 11 – Issue 07 || July 2026 || PP. 05-12*

# Urban Public Transport Terminals as Determinants of Urban Planning

Maria Julia Yukari de Souza Yuaoca
*Architect and Urban Planner*
*maria.yuaoca@gmail.com*

Augusto Pimentel Pereira
*PhD in Urban Management. Assistant Professor at FAE Centro Universitário and FAE Business School*
*augusto.pereira@fae.edu*

**Abstract:** Urban public transport terminals are not merely operational components of the bus system; in Curitiba, they constitute key structuring elements of urban planning and management. The city's road network, land-use patterns, and urban expansion have historically been organized around the corridors of its Bus Rapid Transit (BRT) system. Against this backdrop, this study applies the urban terminal assessment methodology proposed by Lima and Fortunato (2017) to evaluate the Santa Felicidade Urban Terminal in Curitiba. The research pursues two complementary objectives: first, to identify and characterize the terminal's urban and environmental deficiencies; and second, to critically examine the applicability and performance of the assessment framework in a single-case study. The research adopts a qualitative case study approach based on document analysis and systematic field observation. The assessment follows the methodology's six evaluation categories—identifiers, demographics, environmental factors, bus circulation, facilities and services, and spatial elements—covering both the terminal and its immediate urban surroundings. The results yielded an overall score of 56.5 out of 96 points (5.9/10). The findings confirm the terminal's role as a consolidated neighborhood centrality, with its strongest performance observed in the facilities and services category (15 out of 20 points). By contrast, the environmental factors category produced the lowest score (4.5 out of 12 points), primarily reflecting deficiencies in the stormwater drainage system, which contributed to recurrent flooding within the terminal and along Rua da Cidadania. The subsequent discussion argues that the principal limitations identified are less associated with the empirical findings than with the design of certain evaluation categories within the methodology itself. These observations provide a basis for reflections aimed at improving the instrument's analytical granularity, methodological consistency, and replicability in future applications.
**Keywords:** Urban terminal. Urban planning. Assessment methodology. Curitiba. Urban diagnosis.

## 1. Introduction

For more than five decades, Curitiba has been internationally recognized as a benchmark for urban mobility planning (Irazábal, 2018). This reputation stems from a sustained trajectory of innovation in urban planning and governance (Pereira & Prokopiuk, 2022), most notably through the development and consolidation of its Bus Rapid Transit (BRT) system, which began to be implemented in the 1970s (Curitiba, 2024). The BRT network was originally envisioned in the 1966 Master Plan, which proposed the implementation of exclusive bus corridors and the organization of urban growth along these structural axes. Within this planning framework, urban transport terminals perform a role that extends beyond their operational function of integrating feeder and trunk bus services. By concentrating high volumes of passenger movement, these facilities stimulate the establishment of commercial activities, public services, and urban amenities in their surrounding areas, progressively consolidating themselves as neighborhood centers and important nodes of urban centrality (Paranhos, 1983).

Not all urban transport terminals, however, exhibit the level of physical and urban quality expected of such strategic centralities. The Santa Felicidade Urban Terminal, which has been in operation since 1992, exemplifies this condition. Serving residents, workers, and visitors daily in one of Curitiba's most traditional commercial and gastronomic districts, the terminal faces persistent challenges, including deteriorated infrastructure, overcrowding during peak periods, and, most notably, environmental deficiencies associated with inadequate stormwater drainage across the site.

Diagnosing deficiencies of this nature requires assessment instruments capable of systematically and comparatively evaluating the characteristics of both the terminal and its surrounding urban environment. Such instruments should encompass factors that directly and indirectly influence terminal performance, including surrounding population density, site environmental conditions, bus circulation, the availability of nearby urban facilities, and spatial quality. To address this need, Lima and Fortunato (2017) developed a scoring-based

assessment methodology, originally applied to the analysis of the areas surrounding the central terminals of Curitiba's Bus Rapid Transit (BRT) system, structured around six analytical categories.

Against this background, this article pursues two complementary objectives. The first is to apply the assessment methodology developed by Lima and Fortunato (2017) to the Santa Felicidade Urban Terminal to identify and characterize its urban and environmental deficiencies. The second is to critically evaluate the methodology through its application to a single case study, examining its performance in a context that differs from those in which it was originally developed and validated, while proposing refinements aimed at enhancing its analytical granularity and diagnostic capacity.

The remainder of this article is organized as follows. Section 2 provides the theoretical background by contextualizing Curitiba's public transport system and examining the role of urban terminals as structuring elements of urban planning and management. Section 3 presents the assessment methodology proposed by Lima and Fortunato (2017). Section 4 applies this methodology to the Santa Felicidade Urban Terminal, while Section 5 discusses the results of the assessment. Finally, Section 6 examines potential methodological refinements and presents the study's concluding remarks.

## 2. Curitiba's Public Transport System and The Role of Urban Terminals

Curitiba's public transport system is organized around the Integrated Transport Network (Rede Integrada de Transporte—RIT), a system structured by radial corridors that combine exclusive bus lanes, high-density land use in adjacent areas, and a network of integration terminals distributed along these corridors and at neighborhood centers. This configuration enables passengers to transfer between routes under a single-fare system without incurring additional charges (Pavelski & Bernardinis, 2020).

The close integration between transport infrastructure and land-use planning represents one of the earliest examples of what has since become known in international literature as Transit-Oriented Development (TOD). This planning approach promotes higher-density development, mixed land uses, and high-quality public infrastructure around public transport corridors and terminals, with the aim of fostering more accessible, efficient, and sustainable urban development (Lindau et al., 2010; Fernández de Córdova et al., 2023; Ramos & Muller, 2025).

This concentration, however, is not merely a spontaneous outcome of the spatial proximity between transport infrastructure and urban development. Mesentier and Orrico (2024) argue that a portion of public transport demand is generated by the accessibility provided by transport infrastructure. In other words, when a previously underserved area is connected to the public transport network, part of the demand that the infrastructure is intended to accommodate emerges because of its implementation. Accordingly, transport network planning cannot rely exclusively on existing travel demand but must be closely integrated with land-use and urban planning decisions, given the reciprocal relationship between accessibility and urban development. This perspective reinforces the understanding that urban transport terminals should not be viewed solely as operational facilities supporting the bus system. Rather, they function as active agents in shaping urban form, influencing patterns of land use, economic activity, and the spatial organization of the city.

In Curitiba, the relationship between transport infrastructure and urban development has historically been expressed through the so-called *planning tripod*—public transport, the road system, and land use—whose integration has guided the city's linear expansion along structural corridors since the Preliminary Urban Planning Plan of 1965 (Paranhos, 1983). Examining Curitiba's urban planning policies and strategies for active mobility, Jankowski and Maziviero (2020) argue that the city's planning framework remains strongly dependent on the principles established in the 1966 Master Plan. Although the plan played a decisive role in shaping Curitiba's urban development, the persistence of this planning paradigm nearly six decades later has generated important limitations. According to the authors, even more recent sectoral policies, such as the Urban Mobility Plan (PlanMob), have been formulated without adequate alignment with subsequent revisions of the Master Plan, thereby constraining the development of a long-term strategic vision for the city.

More recent studies have also critically reassessed the assumptions underpinning this planning model. Camargo (2023), for example, found that the levels of vertical development and population density originally envisaged for areas surrounding the structural transport corridors were not fully realized. These findings challenge the assumption that proximity to bus terminals and dedicated transit corridors is sufficient to promote high-quality urban environments. Instead, they suggest that the effectiveness of transit-oriented planning depends not only on accessibility but also on the quality of the urban environment, complementary land-use policies, and the provision of supporting public infrastructure.

### 2.1 Urban Terminals as Determinant Elements of Urban Planning and Management

Because proximity to a transport terminal does not, by itself, ensure urban quality, the need for assessment instruments capable of systematically evaluating this quality becomes increasingly evident. Such

instruments enable public authorities to identify where transport infrastructure effectively performs its intended structuring role and where persistent deficiencies remain. This distinction is particularly important for assessing the extent to which planning objectives are translated into the built environment.

The gap between planning and implementation has been highlighted by Silva et al. (2017) in their analysis of the accessibility policies established under Curitiba's Urban Mobility and Integrated Transport Plan (PlanMob). Although the plan proposes measures to improve accessibility at transport terminals and bus stops, the authors argue that the absence of clearly defined targets, implementation strategies, and timelines weakens the practical realization of these objectives, making their translation into effective urban interventions uncertain.

Concerns regarding the reduction of urban inequalities—whether approached through the lens of accessibility (Pereira, Schwanen, & Banister, 2017) or distributive justice (Mesentier& Orrico, 2024)—have become increasingly prominent in transport research. Within this perspective, urban mobility should be understood as extending beyond the mere movement of people across the city. Rather, it constitutes a fundamental mechanism for accessing employment, public services, education, culture, and other urban opportunities, while simultaneously reflecting planning decisions that prioritize specific land uses, infrastructure investments, and patterns of urban development (de Alcântara et al., 2024).

Accordingly, transport planning should be conceived as an integral component of urban planning, guiding the spatial expansion of cities and promoting more equitable patterns of accessibility (Mesentier& Orrico, 2024). This integrated approach contrasts with contemporary models of urban development that frequently reinforce socio-spatial segregation by concentrating opportunities unevenly across the urban territory (de Alcântara et al., 2024).

Curitiba exemplifies this planning paradigm through its linear urban structure, in which higher-density development has historically been concentrated along structural transport corridors that also accommodate the city's highest-capacity public transport services (Cervero & Dai, 2014). Within this framework, urban transport terminals perform a strategic function by fostering the emergence of decentralized neighborhood centralities, replacing the traditional monocentric model with a network of local urban centers. By concentrating transport infrastructure, commercial activities, public services, and urban amenities, these terminals contribute to the consolidation of mixed-use, higher-density corridors that support both accessibility and urban development.

Nichele (2022) developed a parameterized index to evaluate Transit-Oriented Development (TOD) environments through a comparative analysis of case studies in Singapore and Curitiba. The study found that, although Curitiba is widely regarded as a pioneer in TOD principles, it has not, over time, maintained the institutional mechanisms necessary to capture and redistribute the land-value gains generated by proximity to public transport infrastructure. In particular, the city has made limited use of value capture instruments that convert increases in land value into broader public benefits, in contrast to more mature international TOD experiences such as Singapore's.

These findings are particularly relevant to the present study because they reinforce the understanding that urban transport terminals serve not merely as operational components of the bus system, but also as meaningful indicators of the effectiveness of urban planning at the neighborhood scale. Their performance reflects the extent to which transport infrastructure has been successfully integrated with land-use planning, urban design, and the provision of public amenities. Consequently, the study highlights the importance of developing standardized and replicable assessment instruments capable of evaluating terminals across different urban contexts and spatial scales, thereby enabling systematic comparisons of urban quality throughout the transport network over time. It is precisely this methodological gap that the assessment framework proposed by Lima and Fortunato (2017), presented in the following section, seeks to address.

Within this conceptual framework—in which transport terminals are understood as determinants of urban planning rather than merely as transportation facilities—the methodology proposed by Lima and Fortunato (2017) is applied to the diagnosis of the Santa Felicidade Terminal, as presented in the following sections.

## 3. Methodology

This study adopts a qualitative research design based on a single-case study. The assessment framework employed was developed by Lima and Fortunato (2017) to evaluate the urban quality of the areas surrounding Bus Rapid Transit (BRT) terminals in Curitiba. The methodology comprises six analytical categories—identifiers, demographics, environmental factors, bus circulation, facilities and services, and spatial elements—with a maximum cumulative score of 96 points (Table 1).

Table 1: Categories and weights of the methodology of Lima and Fortunato (2017)

| Category | Sub-items evaluated | Weight |
|---|---|---|
| 1. Identifiers | Neighborhood, zone, distance from the city zero-point, area | 12 points |
| 2. Demographics - density | Population of the polygon and the neighborhood, relative population density | 12 points |
| 3. Environmental Factors— anthropogenic treatment | Slope, hydrological conditions, favorable/unfavorable environmental factors, landscaping | 12 points |
| 4. Bus circulation | Number of lines, buses during peak hours, traffic generation | 20 points |
| 5. Facilities and Services | Education, health, culture, leisure, security, commerce | 20 points |
| 6. Spatial elements | Focal point, visual reference, facilitators/hinders of mobility | 20 points |

Source: adapted from Lima and Fortunato (2017).

Each sub-item is assigned a score according to the weighting established for its respective analytical category. The evaluation is based on multiple sources of evidence, including secondary data on municipal zoning, demographic information from the Brazilian Institute of Geography and Statistics (IBGE), and operational data on bus routes and service frequency provided by URBS, complemented by systematic field observations of the terminal and its immediate surroundings. The spatial scope of the analysis adopts the 250-metre buffer defined by the Curitiba Institute of Research and Urban Planning (IPPUC) for urban proximity assessments.

The final score is obtained by summing the subtotals of the six analytical categories and converting the resulting value to a 0–10 scale to facilitate comparison across case studies. The assessment of the Santa Felicidade Urban Terminal was conducted by a single evaluator, with fieldwork carried out in 2025.

## 4. Applications of the Methodology to the Santa Felicidade Terminal

The Santa Felicidade Urban Terminal has been in operation since 1992 and was among the last terminals to be incorporated into Curitiba's Integrated Transport Network (RIT). Table 2 presents the complete application of the assessment methodology proposed by Lima and Fortunato (2017) to the terminal and its immediate urban surroundings.

Table 2: Application of the Lima and Fortunato (2017) methodology to the Santa Felicidade Terminal

| Item | Weight | Santa Felicidade Terminal | Degree |
|---|---|---|---|
| **1.Identifiers — location/zone/area (weight 12 points)** | | | |
| Zone | 6 | Residential Zone 2 (ZR2) + Santa Felicidade Commercial Zone (ZCSF) | 5 |
| Distance from City Zero-Point | 6 | ~7 km | 1 |
| **Subtotal category 1** | **12** | **—** | **6** |
| **2. Demographics — density (weight 12 points)** | | | |
| Population density of the polygon | 6 | 2,054 inhabitants/km² | 3 |
| Position relative to the city's average density | 6 | 0.5 times the average (half) | 2 |
| **Subtotal category 2** | **12** | **—** | **5** |
| **3. Environmental items — anthropogenic treatment (weight 12 points)** | | | |
| Slope | 3 | Slightly tilted | 2 |
| Water system | 3 | Precarious | 1 |

| | | | |
|---|---|---|---|
| Favorable environmental factors | 4 | Subtle transition between levels; nearby urban forests | 2 |
| Unfavorable environmental factors | -4 | Vehicle noise; flooded Rua da Cidadania (Citizen Service Center). | -2 |
| Landscaping | 2 | Trees, square, flower boxes | 1,5 |
| **Subtotal category 3** | **12** | — | **4,5** |
| **4. Bus circulation (weight 20 points)** | | | |
| Number of bus lines | 5 | 25 lines | 3 |
| Buses during peak hour | 7 | ~80 (7:30am–8:30am) / ~90 (6pm–7pm) | 4 |
| Traffic generation | 8 | Traditional restaurants, schools, Rua da Cidadania, popular commerce | 7 |
| **Subtotal category 4** | **20** | — | **14** |
| **5. Equipment and services (weight 20 points)** | | | |
| Education | 4 | 2 public schools | 2 |
| Health | 4 | 1 basic health unit, 1 clinic, 1 medical center | 4 |
| Culture | 4 | Traditional restaurants, Citizen's Street | 2 |
| Public safety | 4 | Fire department | 3 |
| Large-scale public commerce | 4 | 1 grocery store and 1 family market | 4 |
| **Subtotal category 5** | **20** | — | **15** |
| **6. Spatial elements (weight 20 points)** | | | |
| Focal point | 5 | Citizen Street, various shops | 5 |
| Reference visual element | 5 | Various buildings, Citizen's Street | 3 |
| Mobility facilitator | 10 | Road network compatible with traffic flow | 7 |
| Element that hinders mobility | -10 | Narrow streets, no bike lanes, one-way transportation system | -6 |
| **Subtotal category 6** | **20** | — | **9** |
| **TOTAL** | **96** | — | **56,5** |
| **Grade (0–10)** | — | — | **5,9** |

Source: Prepared by the authors (2025), based on the methodology of Lima and Fortunato (2017), data from IBGE (2022 Demographic Census), URBS, and field research.

The assessment yielded a final score of 56.5 out of 96 points, corresponding to 5.9 on the standardized 0–10 scale. The **facilities and services** category achieved the highest score, with 15 out of a possible 20 points. Within the terminal's surrounding area are two public schools, a primary healthcare unit, a medical clinic, a medical center, and a well-established commercial district that includes a fresh produce market and a neighborhood supermarket. These facilities reinforce the terminal's role as a consolidated local urban center.

By contrast, the **environmental factors** category recorded the lowest performance, with only 4.5 out of 12 points. The **water system** sub-item received a score of 1 out of a maximum of 3 points, reflecting deficiencies in local stormwater management. Additional deductions resulted from the recurrent flooding of both the terminal site and the adjacent Rua da Cidadania during periods of heavy rainfall, highlighting the area's vulnerability to inadequate drainage infrastructure.

## 5. Discussions of the Results

The application of the assessment methodology to the Santa Felicidade Urban Terminal reinforces its role as a neighborhood centrality, as evidenced by the high score achieved in the **facilities and services**

category. At the same time, the results reveal the extent to which this central role is constrained by deficiencies in the site's environmental conditions, identified as the terminal's most significant weakness. This finding is consistent with the literature reviewed in Section 2. Although the terminal is surrounded by schools, commercial establishments, and healthcare facilities, thereby functioning as an important node of local accessibility, the proximity of these amenities does not ensure a high-quality urban environment.

The case therefore illustrates that the integration of transport infrastructure and land use in Curitiba does not necessarily translate into satisfactory urban quality. Instead, it suggests that the effectiveness of transit-oriented planning depends on complementary investments in environmental infrastructure and the quality of public space. Moreover, the findings indicate that planning principles formally incorporated into Curitiba's urban mobility policies—such as universal accessibility and environmental quality at transport terminals—are not always translated into effective implementation, revealing a persistent gap between planning objectives and their realization in the built environment.

The **demographics** category reinforces this tension from a different perspective. The Santa Felicidade Urban Terminal received only 5 out of a possible 12 points, reflecting a surrounding population density that is approximately half the municipal average. For an area that has functioned as a consolidated neighborhood center for more than three decades, this represents only a moderate level of urban density. These findings corroborate, at the scale of a single case study, the broader pattern identified by Camargo (2023), who argued that the levels of vertical development and population density originally envisaged for Curitiba's structural transport corridors have not materialized as planned.

The Santa Felicidade Terminal should therefore not be regarded as an isolated case, but rather as empirical evidence of a broader limitation in Curitiba's transit-oriented planning model. The case demonstrates that proximity to a transport terminal alone is insufficient to induce the levels of urban densification and environmental quality anticipated by the city's original planning strategy, reinforcing the need to complement transport infrastructure with coherent land-use policies and sustained investments in the surrounding urban environment.

The most critical sub-item identified by the assessment was the **water system**, which received only 1 out of a possible 3 points. This low score is directly associated with the recurrent flooding of both the terminal site and the adjacent Rua da Cidadania—the principal public space for social interaction and the provision of public services within the complex—during periods of heavy rainfall. These drainage deficiencies also help explain the poor performance of the **elements hindering mobility** sub-item within the **spatial elements** category. The assessment identified several factors that constrain accessibility and circulation, including narrow streets, the absence of dedicated cycling infrastructure, and a predominantly unimodal street network, resulting in a six-point deduction in this category.

The **distance from the city center** sub-item, within the **identifiers** category, received a score of 1 out of a maximum of 6 points. This outcome was expected, given that the Santa Felicidade Urban Terminal is located approximately 7 km from Curitiba's central business district, considerably farther than the central terminals assessed in the original study by Lima and Fortunato (2017), namely Rui Barbosa, Tiradentes, Cabral, and Campina do Siqueira. However, this result also highlights an important methodological limitation. By assigning lower scores to terminals located farther from the city center without accounting for their role as neighborhood centralities, the assessment framework inherently favors central terminals while undervaluing peripheral or district-level terminals that perform comparable functions within their respective urban contexts. This issue raises broader questions regarding the spatial sensitivity and transferability of the methodology, which are examined in greater detail in Section 6.

From a practical perspective, this category-by-category assessment serves not only to characterize the current conditions of the terminal but also to identify priorities for future interventions. In the case of the Santa Felicidade Urban Terminal, any redevelopment strategy should give precedence to improving the site's stormwater drainage system, which represents the principal factor underlying its poor environmental performance. Addressing this critical deficiency is likely to yield greater benefits than directing resources toward categories that already demonstrate satisfactory performance, such as **facilities and services**.

## 6. Methodological Considerations

Applying the assessment methodology proposed by Lima and Fortunato (2017) to a single terminal made it possible to evaluate its performance as a diagnostic instrument in a way that comparative analyses involving multiple terminals do not always permit. Its principal strength lies in its ability to provide a systematic and replicable assessment of diverse dimensions of urban quality, including population density, environmental conditions, bus circulation, and spatial quality. By disaggregating the evaluation into distinct analytical categories, the methodology enables the precise identification of the aspects in which a terminal performs most

poorly, thereby supporting the prioritization of targeted interventions and facilitating comparisons across different case studies.

The empirical application of the methodology also revealed a limitation previously acknowledged, though not fully explored, by its authors. In their concluding remarks, Lima and Fortunato (2017) note that variables such as soil permeability, noise levels, and flood-prone areas "could have a greater weight in the scoring" of the **environmental factors** category. The assessment of the Santa Felicidade Urban Terminal provides empirical support for this observation. This category recorded the lowest relative score (4.5 out of 12 points), largely because of the site's inadequate stormwater drainage.

The case further demonstrates that the methodology does not adequately distinguish between environmental conditions arising from the site's natural characteristics and those resulting from deficiencies in urban infrastructure. In Santa Felicidade, the principal problem is not the intrinsic condition of the terrain itself but the insufficient performance of the drainage system. Nevertheless, both situations are subsumed under the **water system** sub-item, whose maximum weight of only three points provides insufficient analytical granularity to differentiate between fundamentally distinct sources of environmental vulnerability. Consequently, the methodology risks underrepresenting the severity of infrastructure-related deficiencies that may substantially affect the quality and functionality of urban transport terminals.

A second methodological limitation, identified through the discussion presented in Section 5, concerns the **distance from the city center** sub-item within the **identifiers** category. Lima and Fortunato (2017) justify this criterion on the premise that locations closer to the city center are more likely to provide access to a broader range of urban facilities and services. While this assumption may be valid in a traditional monocentric urban structure, its incorporation into the assessment framework risks reinforcing patterns of socio-spatial inequality by systematically privileging central locations over neighborhood or district-level centralities.

The Santa Felicidade Urban Terminal provides an empirical counterexample to this assumption. Despite being located approximately 7 km from Curitiba's Zero Milestone, the terminal achieved its second-highest score in the **facilities and services** category (15 out of 20 points), reflecting the presence of a well-established network of commercial, educational, and healthcare facilities within its area of influence. This finding suggests that the functional centrality of an urban transport terminal may be consolidated independently of its proximity to the city's historic center. As currently formulated, however, the **distance from the city center** sub-item is unable to capture this distinction, instead treating geographic centrality as a proxy for functional centrality. Consequently, the methodology tends to underestimate the urban significance of neighborhood terminals that perform comparable centrality functions within a polycentric urban structure.

Based on these findings, this study proposes two methodological refinements to enhance the analytical capacity of the assessment framework. First, the **environmental factors** category should be disaggregated into sub-items that distinguish between intrinsic site characteristics and deficiencies related to stormwater drainage infrastructure and water management. Such a revision would directly address the limitation previously acknowledged by Lima and Fortunato (2017), while providing greater analytical precision in identifying the underlying causes of environmental vulnerability.

Second, the **distance from the city center** sub-item should be reconsidered and replaced with an indicator capable of capturing centrality at the neighborhood or district scale, rather than relying exclusively on proximity to the city's historic center. This modification would allow the methodology to recognize the functional importance of decentralized urban centralities within polycentric urban structures, avoiding the systematic undervaluation of terminals located outside the central area.

Both refinements preserve the original weighting structure of the methodology while increasing its analytical granularity and improving its sensitivity to terminals operating in different urban contexts and at different spatial scales.

The findings of this study indicate that the assessment methodology proposed by Lima and Fortunato (2017) constitutes a consistent and effective instrument for diagnosing the urban quality of transport terminals. Its application to the Santa Felicidade Urban Terminal confirms the strategic role of these facilities as structuring elements of urban planning and management, as discussed in Section 2, while identifying deficiencies in stormwater drainage as the most critical issue to be addressed in any future redevelopment of the site.

The methodological focus adopted in this study is intentional. Rather than seeking to draw generalized conclusions about the Santa Felicidade Urban Terminal itself, the analysis uses this single case as an empirical lens through which to evaluate and refine the assessment framework proposed by Lima and Fortunato (2017). Accordingly, the primary contribution of this research lies in advancing the methodology rather than in producing definitive conclusions about the terminal under investigation.

Nevertheless, this study has important limitations. The analysis is based on a single case study conducted by a single evaluator, which precludes the assessment of inter-rater reliability and does not permit the statistical

generalization of the observed patterns. Future research should therefore apply the methodology to a broader sample of neighborhood transport terminals in Curitiba to test the methodological refinements proposed here and evaluate their robustness across different urban contexts through comparative and statistical analyses.

## Declaration

The authors declare the use of generative artificial intelligence, specifically ChatGPT in the translation to English of the publication. After using this tool/service, the authors reviewed and edited the content as necessary and took full responsibility for the content of the publication.

## References

[1]. de Alcântara, W. M., Verges, J. V. G., & Fioravanti, L. M. (2024). A mobilidade urbana de estudantes que procuram formação profissional e tecnológica: O caso do Instituto Federal de Mato Grosso – Campus Várzea Grande. Recital – Revista de Educação, Ciência e Tecnologia de Almenara/MG, 6(1), 167–184.

[2]. Brasil, Ministério das Cidades. (2007). Caderno de referência para elaboração de plano de mobilidade urbana – PlanMob. Ministério das Cidades.

[3]. Camargo, C. L. (2023). Verticalização e adensamento urbano: Análise da produção habitacional nos Setores Estruturais de Curitiba entre 1974 e 2022 [Dissertação de mestrado, Universidade Federal do Paraná].

[4]. Cervero, R., & Dai, D. (2014). BRT TOD: Leveraging transit oriented development with bus rapid transit investments. Transport Policy, 36, 127–138.

[5]. Fernández de Córdova, N., Pauta, R., & Hermida, C. (2023). Desenvolvimento urbano orientado ao transporte público: Estratégias para um setor do Centro Histórico de Cuenca atravessado pelo bonde. Cuaderno Urbano, 34(34), 1–24.

[6]. Ferraz, A. C. P., & Torres, I. G. E. (2004). Transporte público urbano (2a ed.). Rima.

[7]. Instituto Brasileiro de Geografia e Estatística. (2022). Censo demográfico 2022. IBGE.

[8]. Irazábal, C. (2018). Desenho urbano, planejamento e políticas de desenvolvimento em Curitiba. In V. Del Rio & W. Siembieda (Eds.), Desenho urbano contemporâneo no Brasil (pp. 179–197). LTC.

[9]. Jankowski, B. M. K., & Maziviero, M. C. (2020). Planos e políticas urbanas relacionadas à mobilidade ativa em Curitiba: O potencial pouco explorado do bairro Centro. Anais do XII Seminário Internacional de Investigação em Urbanismo. https://doi.org/10.5821/SIIU.9954

[10]. Lima, C. de A., & Fortunato, R. A. (2017). Mobilidade e qualidade espacial urbana no entorno de terminais do sistema BRT de Curitiba: Desenho urbano e condições socioambientais. Urbe. Revista Brasileira de Gestão Urbana, 9(Supl. 1), 329–345.

[11]. Lindau, L. A., Hidalgo, D., & Facchini, D. (2010). Curitiba, the cradle of bus rapid transit. Built Environment, 36(3), 274–282.

[12]. Mesentier, T., & Orrico, R. (2024). Transporte orientado ao desenvolvimento urbano. Cadernos Metrópole, 26(60), 489–509.

[13]. Nichele, H. E. (2022). Índice parametrizado de avaliação de espaços de Transit Oriented Development (TOD): Estudos de caso em Singapura e Curitiba [Dissertação de mestrado, Universidade Federal do Paraná].

[14]. Paranhos, A. M. D. R. (1983). A experiência curitibana e o planejamento urbano brasileiro. Revista do Serviço Público, 40(111), 95–106.

[15]. Pavelski, L. M., & Bernardinis, M. de A. P. (2020). Análise do sistema de transporte da cidade de Curitiba a partir da ótica do índice de vulnerabilidade social (IVS). Brazilian Journal of Development, 6(10), 77473–77493.

[16]. Pereira, A. P., & Prokopiuk, M. (2022). Conjunturas e eventos críticos na trajetória da modelagem da informação em Curitiba. Revista de Administração Pública, 56(6), 772–798. https://doi.org/10.1590/0034-761220220142

[17]. Pereira, R. H. M., Schwanen, T., & Banister, D. (2017). Distributive justice and equity in transportation. Transport Reviews, 37(2), 170–191.

[18]. Ramos, D. V., & Muller, T. (2025). O planejamento da mobilidade urbana e a gestão territorial: O conceito TOD (transit-oriented development) e as infraestruturas de transporte público coletivo em capitais brasileiras. Vernácula – Territórios Contemporâneos, 3(11).

[19]. Silva, M. V. G., Peron, A. C. P., Oliveira, A. G., & Polli, S. A. (2017). O Plano de Mobilidade Urbana e Transporte Integrado no Município de Curitiba: Uma análise das políticas públicas de acessibilidade. Revista Paranaense de Desenvolvimento, 38(132), 149–162.

[20]. Urbanização de Curitiba S/A. (2026). Rede integrada de transporte. https://www.urbs.curitiba.pr.gov.br/portal/transporte/rede-integrada-de-transporte/