# Peshawar Bus Rapid Transit (BRT) — Policy, Performance, and Impact Assessment


## Abstract

Urban transport in Pakistan, unlikedeveloped countries," was not planned at all and public transport services operate as a disintegrated mode of the travel including motorcycle rickshaws,constitute an additional burden often creating traffic jams particularly along roadsides causing a severe air pollution. But then again, the Peshawar Bus Rapid Transit (BRT) or "Zu Peshawar" as it is known locally waslaunched with much promise: It was to be transformative in that it would transform urban mobility for KP's capital. Launched in August 2020 with ADB assistance, the system comprises almost 27 km of exclusive corridor along which the 30 stations are located as well as an integrated feeder network to improve accessibility, affordability, and sustainability. The BRT was designed not just as a transport solution, but as an instrument for invigorating gender equity and sustainableurban development.

The paper evaluates the Peshawar BRT in terms of performance and challenges in multiple dimensions including its policy back-ground, operational efficiency, financial feasibility, inclusiveness/ safety/environmental objectives. It is the second method of research and rests on the secondary ADBproject documents, think-tanks articles, academic papers and reliable press. It also argues that high ridership of Zu Peshawar shows a hidden need yet to be met by informal (or un-institutionalized) modes, underscoring the ways in which institutionalized service provision is able to manipulate mobility practices in low-income urban environments. The social component of the system's design – including cars for women only, quotas for female employees and universal access ramps – has done much to enhance a sense of security and accessibility among women, as well as for seniors and disabled people.

But it too has run into major challenges, even as it achieved success. In the weeks after that new system went into effect, there were a string of fires caused by technical gremlins in the bus equipment; some temporary halts occurredin service followed by more questions about procurement practicesand safety procedures. On a financial basis, the system remains heavily dependent on government support, with Trans-Peshawar recording PKR 3.3bn gap in FY22–23 and fiscal sustainability concerns in the medium to long term. Furthermore, as much as the fleet of hybrid-electric buses may be a step in the right direction for cleaner mobility, if Kenya's plans to fully electrify by 2030 is to become areality, significant resources need to be investedin charging infrastructure and grid management while seeking support from climate financepartners.

In conclusion, the findings suggest that Zu Peshawar represents a critical point in urban transport history of Pakistan and effectively demonstratedthat there are clear demands for safe, secure and inclusive public transit. But its future relies on operational efficiencies, multiple revenue streams and improved safety protocols — not to mention bringing alive the environmental commitments. Policy suggestions to stabilize the finances, promote first/last-mile connectivity by cycling and pedestrian networks, and upscale electrification schemes have also been recommended in the paper. If these are stepping stones, the Peshawar BRThas the potential to be a replicable model for other South Asian cities grappling with similar mobility crises.

**Keywords:** Zu Peshawar, Bus Rapid Transit, urban transport, Pakistan, inclusive mobility, public policy

## 1. Introduction

Challenges of urban transport systems in Pakistan include endemic undersourcing, uncoordinated services and infrastructure, leaving cities to heavily rely on informal modes like rickshaws, minivans, vans that worsen congestion, pollution and are safety threats These pressures have been exacerbated by rapid urbanization particularly in Peshawar where increasing mobility demand exposed the capacity shortfall and the inadequacy of an unsafe, overcrowded and unreliable public transport network dominated by old wagons and minibuses (World Resources Institute 2023; World Economic Forum 2022). The Khyber Pakhtunkhwa government responded by inaugurating the Peshawar Bus Rapid Transit (BRT) in 2017, funded with help of financing from the Asian Development Bank and choosing BRT over rail as a cost-effective, more easily implemented solution that has been successful in cities like Bogotá, Jakarta and Ahmedabad (Cervero & Dai, 2014). The project was on component of a comprehensive urban governance reform which included measures to improve mobility, safety and accessibility for women and other vulnerable groups, reduce emissions by introducing cleaner hybrid-electric buses, and overall enhance institutional capacity through the creation of Trans-Peshawar. From a regional perspective, BRT is being considered as the new age metro-type solution to car-based urbanization although with an ambivalent record in South Asia where earlier embodiment in Lahore, Rawalpindi-Islamabad and Multan has been critiqued for limited coverage and non-sustainability (Perecman et al., 2010). Peshawar's system is unique in having third generation characteristic by way of trunk-and-feeder network, integration with pedestrian and cycling systems along with gender-sensitive approach(Heinrich Böll Stiftung, 2023). It opened with the first 27 km corridor on August 13, 2020 with more than 30 stations and over 240 hybrid buses and an extensive feeder network covering all Peshawar's metropolitan area by uniting its passengers; by year of 2024 their daily ridership exceeded to be over more than a total ridership of over one lac passengers per day (Trans-Peshawar Annual Report, 2023–2024). The system has also been equipped with women-only cars, safe and well-lit train stations, and an inclusive labor policy to address long-time safety and mobility issues while ensuring that women actively engage in the city's economic and social life (World Economic Forum, 2022).

### 1.2 Challenges and Criticism

The Peshawar BRT has faced many difficulties and criticism since its launch at the initial phase. In the immediate aftermath of their launch, malfunction-triggered spontaneous combustion incidents involving electric buses resulted in initial suspension of bus operations and a comprehensive technical investigation (Dawn, 2020; Arab News, 2020). Which did eventually, resume mining after repairs, but the episodes raised questions about procurement oversight and engineering quality control.

Financial viability has beenanother problem. From day one, the system operates at a deficit and Trans-Peshawar posted an operating loss of PKR 3.3 billion in FY22–23 (Trans-Peshawar, 2023). Subsidies are common in mass transit operations everywhere but the addition of these liabilities to the strains on provincial ex-chequers has led to questions about their long-term viability. Opponents say that the system could end up being a drain on government coffers in perpetuity if it doesn't have income from advertising, retail leasing and land value capture.

The project has been politically contentious, with opposition parties criticizing cost overruns and delays in its implementation. Originally scheduled to be completedin2018, the project was waylaid by numerous delays and setbacks that fed skepticism among taxpayers.

## 1.3 Environmental Significance

One of BRT's big selling points was that it would bring summer in Peshawar closer to European winter! The city has long suffered from bad air quality because of the extensive use of ageing diesel minibuses and a growing number of private cars. Over older bus fleets, Zu Peshawar also lowers the release of particulate matter and greenhouse gases by bringing in hybrid-electric buses. In addition, the system is consistent with KP's climate action objectives: there is a roadmap to convert the entire fleet to electric power by 2030 (ITDP, 2025).
Furthermore, the package comprises cycling paths and walkways, provided they are effectively built would help to promote non-motorized transport. Yet, as critics argue, these facilities are under-developed and underused calling for other measures if you want to effect modal shift in reality (Heinrich Böll Stiftung, 2023).

## 1.4 Institutional and Governance Dimensions

Zu Peshawar is operated by TransPeshawar, a government-owned organization formed to professionalize public transport duties.? TransPeshawar is unique in comparison to earlier BRT systems developed by Pakistan's own development authorities due to its contracting arrangement transferring BRT services to private operators, while maintaining regulatory and strategic control over the system.

## 1.5 Objectives of Study

On the other hand, since Zu Peshawar has potential for change and finds much controversy, this paper aims:

1. Analyze the policy justification and financing of Peshawar BRT.
2. Evaluate the design and functioning of service, including ridership effects and inclusive features.
3. Examine financial sustainability including subsidies and revenue models.
4. Examine the safety and technical problems that will indicate up in initial operations.
5. Investigate environmental positioning, such as the move to electrification.
6. Provide recommendations to improve its longer-term sustainability and potential for replication in other cities.

By locating Zu Peshawar in a local, and international BRT context, this research is of wider relevance to the debate over how developing countries can attempt to implement sustainable, inclusive and financially sound urban transport provision.

# 2. Literature Review

## 2.1 Global BRT Experience

Bus Rapid Transit (BRT) systems have rapidly gained international popularity because they provide a cost-effective and flexible option to rail-based mass transit, particularly in fast-

urbanizing, resource-constrained cities. Successful BRT across the world, in cities like Bogotá, Curitiba, Guangzhou and Jakarta prove that with dedicated lanes, off-board fare collection, high-quality stations and strong institutional support, you can dramatically increase travel speeds (up to 10 times faster than the average bus), safety and passenger comfort. These cases illustrate that the performance of BRT is very much a function of governance quality, regulatory implementation, and feeder integration. Studies repeatedly find that BRT's efficacy reaches beyond mobility; well-planned systems also lead to emissions abatement, urban air-quality gains and better gender inclusion and social equality in cities (Cervero & Dai, 2014; ITDP, 2022). Yet international experience also sounds a note of warning. In many cases, lack of political backing also leads to little or no support from the regulators leading to corridor invasions, lax enforcement and operational unreliability. These mixed results emphasize the significance of matching technical design with institutional capability.

## 2.2 BRT in South Asia

South Asian cities, including Delhi, Dhaka, Lahore and Ahmedabad have some form of BRT with varying degrees of success. Ahmedabad's Janmarg is often referred to as the regional model, with its close coupling between trunk and feeder systems, emphasis on multi-modal connectivity and institutional coordination. The Delhi and Dhaka BRT undertakings also stand out as examples of what can go wrong with systems introduced without sustained enforcement, stakeholder buy-in, or dedicated right-of-way protection. Political dispute, incomplete facilities, and mixed traffic penetration have brought loss operation condition and public acceptance. This regional variation is analytically.This regional variation is analytically significant, because it demonstrates how key contextual factors—factors such as political continuity, bureaucratic autonomy and urban-planning capacity—affect the outcomes of BRT systems. These observations are invaluable for understanding the BRT sector in Pakistan, where such governance and coordination challenges remain (Perecman et al., 2010).

## 2.3 Evolution of BRT in Pakistan

Pakistan has had its share of BRT in the Lahore Metrobus in 2013, and later systems in Rawalpindi-Islamabad and Multan. These projects showed that mass transit was possible in Pakistan's major cities, but also exposed issues related to operations and the institutions involved. Criticism Limited network coverage, lack of multimodal integration, high operating subsidies and politicization of route planning. The networks are largely structured around single corridors that do not meet wider urban mobility demand, limiting the transformative nature of such schemes. Within the constraints, the advent of BRT in Pakistan brought about an institutional change from informal public transport to formalized mode replacing a long use of unregulated privately operated minibuses and vans. The Peshawar BRT is the continuation of this process, aiming to address previous design shortcomings through greater environmental considerations and gender inclusion.

## 2.4 BRT in Peshawar: A Distinctive Case

Zu Peshawar is Pakistan's first ever "third-generation" BRT system including trunk and feeder components, universal service and companies using hybrid electric buses along with the development of pedestrian facilities, cycling infrastructure. Unlike previous BRTs in Pakistan, the Peshawar project also focused on institutional reforms, including establishing TransPeshawar — a specialized urban mobility authority to manage contracting and delivery. It is also notable that, according to these reports, Peshawar's approach—the fusion of governance

reform with transport design—distinguished it across the country. Meanwhile, the service confronts issues endemic to all regional BRTs like congestion spillback, unmet funding obligations and political narratives. The Peshawar case therefore provides a platform to explore how design innovations interface with governance realities at the scale of a low-income urban area (Heinrich Böll Stiftung, 2023).

## 2.5 Gender and Mobility in Urban Transport

In South Asian cities, mobility is highly gendered: cultural norms shape safety concerns and access to resources. Women often face harassment, overcrowding, and a shortage of secure waiting areas—barriers that hinder their participation in education, employment, and urban life. Studies show that gender-responsive design in public transport—such as well-lit stations, women-only sections, CCTV monitoring, and equitable hiring practices—can significantly enhance women's mobility and economic inclusion (World Economic Forum, 2022). From women-only compartments and separate entrances to monitored stations and female staff, Zu Peshawar's gender equity model draws global inspiration while remaining rooted in local culture. Understanding these measures is vital because gender equity is not merely a social good—it is a cornerstone of effective transport policy.

# 3. Methodology

## 3.1 Research Design

This study adopts a qualitative, document-based research design to evaluate the performance, governance structures, and social and environmental implications of the Peshawar BRT (Zu Peshawar). A qualitative approach is appropriate because the study aims to interpret policy decisions, institutional dynamics, and user-centered outcomes rather than estimate causal effects through quantitative modelling. The analysis relies on triangulation of multiple secondary sources to ensure robustness and reduce single-source bias.

## 3.2 Data Sources

Data were collected from a range of credible secondary sources, including:

- Asian Development Bank (ADB) project reports and monitoring documents
- TransPeshawar operational statistics and annual updates
- Government of Khyber Pakhtunkhwa planning and policy documents
- Peer-reviewed journal articles and international BRT evaluations
- Reports from ITDP, WRI, and other transport research organizations
- National and international news sources reporting on BRT operations
- Academic literature relevant to gender, sustainability, and urban mobility

These sources provide comprehensive insights into the design rationale, operational performance, social impacts, environmental outcomes, and governance arrangements of Zu Peshawar.

## 3.3 Rationale for Secondary Data

It was not possible to collect primary data, such as interviews, passenger surveys, or field observations, because of institutional access restrictions and the lack of stable field permissions during the evaluation period. Moreover, COVID-19 control measures between 2020 and 2022 prevented any reliable on-ground assessment. Given that validated operational data were already available from ADB, Trans-Peshawar, and other credible urban mobility institutions, secondary analysis was adopted as a practical, ethical, and methodologically sound alternative. Using these institutional datasets ensures reliability and minimizes respondent bias or sampling inconsistencies.

### 3.4 Analytical Framework

The study applies a thematic analysis approach to systematically examine qualitative information obtained from the secondary sources. Thematic analysis is suitable for synthesizing diverse forms of textual data and identifying cross-cutting themes that emerge across policy documents, operational reports, and academic literature.

## The thematic analysis followed Braun and Clarke's six-step process:

1. **Familiarization** – Reading and annotating all collected documents to identify preliminary ideas.
2. **Initial coding** – Generating open codes related to mobility performance, gender inclusion, safety, governance, financial sustainability, and environmental impacts.
3. **Searching for themes** – Grouping related codes into broader thematic categories.
4. **Reviewing themes** – Refining theme boundaries, checking coherence with the data, and removing redundancies.
5. **Defining and naming themes** – Finalizing analytical themes such as "mobility outcomes," "governance capacity," "inclusivity," and "environmental sustainability."
6. **Synthesizing findings** – Integrating thematic insights into the results and discussion sections.

## Reliability Measures

To enhance analytical reliability, codes and themes were cross-checked with established BRT evaluation frameworks used by ADB, ITDP, and WRI. This ensured alignment with internationally recognized mobility and sustainability indicators.

## 3.5 Case Boundaries

The temporal scope of the study spans from the project's conceptualization and planning phase in 2017 to its operational performance up to mid-2024. Spatially, the analysis covers the 27-kilometre main BRT corridor, its 30 stations, and the associated feeder routes within the Peshawar metropolitan area. These boundaries ensure that findings reflect both the system's structural design and its actual on-ground performance.

### 3.6 Limitations of the Methodology

As a secondary qualitative study, the analysis depends on the availability and accuracy of publicly accessible data. Some operational statistics are reported by institutional stakeholders and may contain presentation bias. The absence of field-based user surveys limits the ability to directly capture rider experiences or satisfaction levels. Nevertheless, the use of multiple cross-validated data sources and recognized evaluation frameworks mitigates these limitations.

## 4. Data Analysis

### 4.1 Ridership and Coverage

The Peshawar BRT has demonstrated strong and sustained ridership growth since its inauguration in 2020. By 2024, daily ridership regularly exceeded 300,000 passengers, supported by a 27-kilometres main corridor, 30 stations, and an extensive feeder network connecting peripheral neighborhoods to the trunk route (Trans-Peshawar, 2024; ADB, 2023). These figures indicate significant latent demand previously unserved by informal modes and suggest that Zu Peshawar is reshaping urban mobility preferences within the city.

**Table 4.1:**

Ridership and Network Coverage Indicators

| Indicator | Value | Source |
|---|---|---|
| **Daily Ridership (2024)** | 300,000+ passengers | Trans-Peshawar (2024) |
| **Annual Ridership (2023)** | 80 million+ trips | ADB (2023) |
| **Corridor Length** | 27 km | ADB (2017) |
| **Number of Stations** | 30 | ADB (2017) |
| **Number of Feeder Routes** | Multiple integrated routes | Trans-Peshawar (2024) |

**Interpretation:**
The consistently high ridership demonstrates a substantial modal shift from informal transport and highlights the system's role as the primary mass-transit backbone in Peshawar. However, the concentration of demand along a single corridor also exposes limitations in geographical coverage, indicating the need for future network expansion or multimodal integration to achieve broader systemwide benefits.

### 4.2 Inclusivity and Gender-Responsive Design

Zu Peshawar incorporates several features designed to enhance inclusivity, particularly for women, elderly passengers, and persons with disabilities. These include women-only compartments, designated entrances, tactile paving, level boarding, CCTV surveillance, and improved lighting at stations. Female staffing policies within Trans-Peshawar further reinforce a gender-responsive environment.

**Table 4.2:**

Inclusivity Features of Zu Peshawar

| Feature | Description |
|---|---|
| Women-only sections | Separate compartments and entrances |
| Safety measures | CCTV, guards, and well-lit stations |
| Accessibility | Level boarding, universal access design |
| Institutional inclusion | Female hiring in BRT operations |

**Interpretation:**
These features address long-standing barriers to women's mobility in Pakistan, where safety concerns often deter women from using public transport. The BRT's gender-responsive approach not only enhances mobility but also supports greater participation of women in socio-economic activities, aligning the system with global best practices on equitable mobility.

## 4.3 Financial Sustainability

Operational financial data indicates that Zu Peshawar relies heavily on public subsidies to maintain service quality. Rising operational costs—particularly fuel, maintenance, and fleet replacement—combined with a flat-fare structure create persistent fiscal pressures.

**Table 4.3:**

Financial Indicators for Zu Peshawar

| Indicator | Trend | Source |
|---|---|---|
| Operating Subsidy | Increasing annually | Government of KP (2023) |
| Fare Revenue | Stable but insufficient | Trans-Peshawar (2024) |
| Fleet Maintenance Costs | High due to hybrid technology | ADB (2023) |

**Interpretation:**
Financial sustainability remains a core challenge. The system's dependence on subsidies suggests a structural tension between affordability and economic viability. Without diversification of revenue sources—such as advertising, transit-oriented development, or tiered fares—the current model may face long-term fiscal strain.

## 4.4 Safety and Technical Reliability

Peshawar BRT has encountered several operational issues since launch, including isolated incidents of vehicle malfunction, overcrowding, and corridor encroachment during peak hours. System reliability has improved over time, but headway inconsistencies during high-demand periods remain a concern.

**Table 4.4:**

Operational and Safety Indicators

| Indicator | Status |
|---|---|
| **Overcrowding at peak hours** | Persistent |
| **Corridor encroachment** | Occasional |
| **Technical malfunctions** | Reduced since 2021 |
| **Security features** | Active CCTV and station guards |

**Interpretation:**
Operational and safety challenges reflect the broader urban transport environment in Peshawar, where mixed-traffic interactions and road-use behaviors affect BRT performance. Improvements will require both technical adjustments (fleet expansion, headway control) and stronger enforcement of dedicated lane protection.

## 4.5 Environmental Sustainability Measures

Zu Peshawar's environmental strategy centers on reducing emissions through a hybrid low-emission fleet and planning for future electrification. By replacing thousands of high-polluting minibuses and wagons, the system contributes to improved air quality in the city.

**Table 4.5:**

Environmental Indicators

| Indicator | Description |
|---|---|
| **Fleet Type** | Low-emission hybrid buses |
| **Emission Reduction Potential** | Significant reduction in PM2.5 pollutants |
| **Long-term Plans** | Gradual electrification |

**Interpretation:**
Environmental benefits are evident but will require consistent policy support, stable funding, and infrastructure development (such as charging facilities) to transition toward full electrification in the long term. Sustainability gains are thus contingent on broader urban governance and energy-sector reforms.

## 5. Discussions

My analysis of Peshawar's BRT, in other words, reveals a  program that has achieved significant The performance of Zu Peshawar illustrates both the potential and complexity of implementing a modern BRT system within a developing-country context. The consistently high ridership indicates strong demand for reliable public transport and confirms that a significant portion of urban travelers are willing to shift away from informal modes when provided with safe, predictable, and affordable alternatives. However, the system's success in attracting large

numbers of users has also generated operational pressures, including overcrowding, headway instability, and increasing fleet maintenance requirements. These challenges underscore a central tension observed in other high-demand BRT systems globally: the need to balance operational efficiency with service quality under constrained financial and infrastructural conditions.

The governance structure of Zu Peshawar, particularly the creation of Trans-Peshawar as a dedicated implementation and operations entity, represents a notable institutional advance in Pakistan's urban transport sector. Unlike earlier BRT systems in Lahore or Rawalpindi-Islamabad—where fragmented responsibilities hindered performance—Peshawar's more centralized governance framework has enabled stronger contract management and accountability. Nevertheless, coordination with traffic police, municipal authorities, and enforcement bodies remains essential to ensure consistent corridor protection and minimize interference from mixed traffic. This reflects global evidence that BRT performance relies not only on technical design but also on the political and administrative capacity to enforce system rules.

The gender-responsive design of Zu Peshawar has had a transformative effect on women's mobility. The provisions of women-only compartments, enhanced security measures, and a gender-inclusive staffing policy align with international best practices that address culturally specific barriers to women's travel. These features have improved perceptions of safety and allowed previously excluded groups to access education, employment, and healthcare more regularly. The Peshawar experience reinforces research indicating that gender-sensitive design is not an add-on but a core requirement for equitable and sustainable mobility in South Asian cities.

Financial sustainability, however, remains a persistent challenge. The system's reliance on public subsidies mirrors global BRT norms but raises questions about long-term fiscal resilience. Operating costs—particularly for hybrid fleets—continue to rise, while the flat fare structure limits cost recovery. Experience from cities such as Bogotá and Guangzhou shows that diversified revenue streams, including advertising, real estate development, and differentiated fares, can ease subsidy burdens. Without similar innovations, Peshawar's fiscal model may face growing pressure, potentially constraining future service improvements or system expansion.

Environmental performance has been broadly positive, with the hybrid fleet reducing emissions compared to conventional diesel minibuses. Yet, environmental sustainability depends on the reliability and expansion of low-emission technologies over time. Transitioning to full electrification will require significant investments in charging infrastructure, power-system reliability, and long-term fleet management. This highlights the interconnected nature of environmental objectives with broader urban planning and energy-sector reforms.

Overall, Zu Peshawar demonstrates that a well-designed BRT system can deliver substantial social, mobility, and environmental benefits even within a resource-constrained, politically complex context. At the same time, the case reveals structural vulnerabilities—financial, operational, and institutional—that must be addressed to ensure long-term sustainability. The analysis thus positions Peshawar's BRT not only as a local transport solution but as an instructive example for other developing cities seeking to modernize their mobility systems.

## Recommendations

To make BRT Peshawar sustainable and resilient for the long run, some recommendations suggested are;

1. **Financial Restructuring:**
   The existing flat fare of Rs 10 is societally equitable but lacks financial sustainability. Implementing a tiered fare system — with targeted subsidies or a discount pass for low-income riders — might help revenue. More revenue could be had through advertising, transit-oriented development, and public-private partnership funds.
2. **Operational Efficiency:**
   Quality of service can be enhanced through improved scheduling, feeder routes and traffic management along mixed-use corridors. The introduction of ITS (Morlok 2003), such as GPS-based tracking, automated ticketing and real-time information has increased the dependability and attractiveness for passengers.
3. **Infrastructure Expansion and Integration:**
   The extension of feeders to peri-urban and under-served areas would lead to more ridership potential. Building more bus-only lanes would also relieve congestion-induced delays and make travel times more predictable.
4. **Environmental Sustainability:**
   Progressive migration from diesel hybrid to full electric buses, enabled through investment in charging infrastructure, is a priority measure for carbon reduction. International climate funds and development institutions could help finance this transition.
5. **Institutional Capacity Building:**
   A strong and transparent governance of Trans-Peshawar with stakeholder participation is crucial to ensure effective oversight. On-going monitoring and tracking through collaborations with universities and research organizations can maintain improvements over time.

## References


Arab News. (2020). *Peshawar BRT suspended after buses catch fire.*

BRTData. (2024). *Global BRT database.*

Cervero, R., & Dai, D. (2014). BRT as a sustainable mobility option. *International Journal of Sustainable Transportation, 8*(1), 1–15.

Cheng, L., & Abdullah, M. (2024). Sustainable mobility frameworks in rapidly growing cities: A global review of transit innovations. *Journal of Urban Transport Policy, 18*(2), 145–162.

Deng, T., & Nelson, J. D. (2011). Recent developments in Bus Rapid Transit (BRT): A review of the literature. *Transport Reviews, 31*(1), 69–96.

Heinrich Böll Stiftung. (2023). *Gender and urban transport in Pakistan: Lessons from Peshawar BRT.*

Hernandez, D. (2017). Women-only transport in Latin America: Policy and practice. *Gender & Development, 25*(3), 439–454.

Hidalgo, D., & Carrigan, A. (2010). BRT in developing countries: Lessons from Latin America. *Transportation Research Record, 2193*, 11–18.

Hidalgo, D., & Gutiérrez, L. (2013). BRT and urban development in Bogotá. *Transport*

*Reviews, 33*(2), 195–217.
ITDP. (2017). *The BRT standard.* Institute for Transportation and Development Policy.
ITDP. (2025). *Electrification roadmap for Zu Peshawar.* Institute for Transportation and Development Policy.
Khan, M., & Anwar, Z. (2019). Public transport reforms in Pakistan: An analysis of BRT systems. *Asian Journal of Public Policy, 12*(1), 45–60.
Kumar, A., Soto, G., & Meyer, R. (2025). Reassessing the BRT–rail continuum: Cost, performance, and governance considerations in modern megacities. *Transport Systems Review, 12*(1), 33–57.
Levy, C. (2013). Travel choice reframed: Deep distribution and gender in urban transport. *Environment & Urbanization, 25*(1), 47–63.
Litman, T. (2015). *Evaluating public transit benefits and costs.* Victoria Transport Policy Institute.
Mishra, A., & Dash, N. (2016). Janmarg BRT: India's success story. *Journal of Transport and Land Use, 9*(2), 1–15.
Pojani, D., & Stead, D. (2015). Sustainable urban transport in developing countries: Beyond megacities. *Sustainability, 7*(6), 7784–7805.
Pucher, J., Korattyswaroopam, N., Mittal, N., & Ittyerah, N. (2007). Urban transport crisis in India. *Transport Policy, 14*(5), 372–382.
Qureshi, I., & Huapu, L. (2014). Urban transport strategies in Pakistan. *Transportation Research Part A, 67*, 128–140.
Rahman, M., Nahrin, K., & Schmöcker, J. (2019). Gender and public transport in South Asia. *Journal of Transport Geography, 80*, 102–116.
Rahman, T., & Leung, S. (2023). Performance evaluation of next-generation BRT systems in Asia and Latin America. *International Journal of Sustainable Mobility, 9*(4), 201–219.
Shah, A. (2022). Women's experiences with Zu Peshawar BRT. *Pakistan Journal of Gender Studies, 19*(2), 115–134.
Silva, P., & Ortega, M. (2024). Climate-smart public transport: Emission reductions and air quality impacts of BRT corridors. *Environmental Transport Insights, 7*(1), 58–77.
Zhang, Y., & Kim, S. (2024). Modernizing bus rapid transit: Integrating smart technologies for enhanced mobility performance. *Urban Mobility Innovations, 6*(3), 89–108.
Trans-Peshawar. (2024).Operational Statistics and Service Performance Update. TransPeshawar (Urban Mobility Company).

Asian Development Bank. (2017).*Report and recommendation of the President to the Board Directors: Proposed loan to Pakistan for the Peshawar Sustainable BRT Corridor Project.* Asian Development Bank.
Asian Development Bank. (2023).*Pakistan: Peshawar Sustainable Bus Rapid Transit Corridor—Project performance monitoring report.* Asian Development Bank.
Cervero, R., & Dai, D. (2014). BRT as a sustainable mobility option in developing cities. *Journal of Transport Geography, 39*, 1–10.
Dawn. (2024).*Zu Peshawar ridership crosses 300,000 per day.* Dawn News.
Government of Khyber Pakhtunkhwa. (2023).*Urban mobility and transport sector performance report.* Transport & Mass Transit Department, Government of KP.
Heinrich Böll Stiftung. (2023).*Gender and mobility: Understanding inclusive transport in Pakistan.* Heinrich Böll Stiftung Pakistan.

Institute for Transportation and Development Policy (ITDP). (2022).*The BRT Standard: Global scorecard and best practices.* ITDP.

Perecman, E., Ahmed, S., & Khanna, S. (2010). Bus rapid transit in South Asia: Performance, challenges and opportunities. *South Asian Transport Journal, 4*(2), 15–28.

TransPeshawar. (2024).*Operational statistics and service performance update.* TransPeshawar (Urban Mobility Company).

World Economic Forum. (2022).*Gender-inclusive mobility systems: Lessons from emerging economies.* World Economic Forum.

World Resources Institute. (2023).*Sustainable urban transport in Pakistan: Trends, challenges and opportunities.* WRI Ross Center for Sustainable Cities.