



Navigating Bangkok's Road Public Transport:

Modes, Users, and Integration

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1. Introduction

Despite the rapid expansion of Bangkok' s urban rail networks, road public transport remains the lifeline for most residents, with over 75% of public transport trips relying on road-based fixed-routes services like buses and vans, according to the Office of Transport and Traffic Policy and Planning (OTP)' s study.¹ What makes Bangkok truly unique is its incredible diversity of transport modes--beyond buses and vans, songthaews, tuktuks, silorleks, and motorcycle taxis provide a significant share of the city mobility. Understanding these modes and the diverse needs of their users is crucial for designing a more inclusive and effective transport system. For instance, low-income



Figure 1 Songthaew (Left) and tuktuk (Right)



Figure 2 Silorlek (Left), motorcycle taxi (Right)

groups often prioritize affordability over speed, leading to longer commutes that impact their quality of life and earning potential. Addressing these disparities through equitable transport policies can enhance access, reduce inequality, and support broader social and economic well-being.

2. Transport Modes

Bangkok has diverse transport modes that cater to a wide range of travel demands. These modes can be classified by formality and route type as shown in Table 1.

Route	Fixed route	On-demand
UTILIATILY		
Formal Transport	bus , bus rapid transit	taxi
Mode	(BRT)	
Informal Transport Mode ²	public vans, songthaew, silorlek	motorcycle taxi, tuktuk

Table 1. Transport modes in Bangkok



Figure 3 BRT (Left) and public van (Right)





Fixed route transport services

For fixed-route transport, all services are licensed by the Central Committee of Land Transport Control, chaired by the Minister of Transport. Local buses play a crucial role in Bangkok's public road transport, operated by both public (Bangkok Mass Transit Authority; BMTA) and private sectors. The network spans approximately 178 routes, serving around 731,000 riders daily.³ Despite the extensive network, coverage gaps remain, as shown in Figure 4. This issue largely arises from the lack of a dedicated planning authority to ensure comprehensive citywide service. The current bus network has evolved through a market-driven approach, with private operators prioritizing profitable routes over broader public transit needs. The city also has a Bus Rapid Transit (BRT) system operating

on a single route with dedicated lanes; however, its efficiency is compromised by mixed traffic encroachment and traffic control measures that struggle to prioritize the BRT lanes.

Informal fixed-route services also have distinct operational characteristics. Public vans, were recently required to be upgraded to minibuses, primarily offer long-distance connections from suburban areas to downtown Bangkok. Songthaews and silorleks-converted pickup trucks-operate on smaller streets (known as soi), with larger songthaews serving suburban routes and smaller silorleks covering short routes in dense residential areas. Notably, informal fixed-route services are typically run by individual owneroperators who form cooperatives to obtain operating licenses.



Figure 4 Bus Stops and Population Density Map



Non-fixed route transport services (on-demand transport services)

Bangkok's on-demand transport services comprise 73,502 registered 65,027 taxis, motorcycle taxis (locally known as "wins"), and 8,689 tuktuks (motor tricycles).⁴ Taxis play a crucial role in bridging gaps in mass transit coverage. However, the heavily regulated fare structure⁵ that fails to reflect operating costs and current economic conditions prompts drivers to turn down less profitable trips to offset rising expenses. Motorcycle taxis are essential in densely populated superblocks, linking small streets (Soi) to main roads, face efficiency and safety though they challenges due to empty back hauls (mandated by regulations)⁶ and high-speed navigation through traffic. Tuktuks, popular for their unique design, operate on a negotiable fare basis and enjoy a strong tourist following.

The rise of ride-hailing apps has transformed Bangkok's on-demand transport, prompting regulatory updates⁷ to integrate private vehicles, traditional taxis, and motorcycle taxis. This shift also inspired the launch of Muvmi,⁸ a local electric tricycle service offering community-friendly shared rides primarily for local residents. Muvmi distinguishes itself from traditional tuktuks, which cater mostly to tourists, by focusing on short, convenient trips for locals.



Figure 5 Taxi (Left) and Muvmi (Right)

3. Users' Profile

The Bangkok population is dispersed as shown by the population density in Figure 4. The average age of Bangkok residents is 41 years, reflecting an aging society, and the average and median household monthly income are 40,201 and 29,029 THB,⁹ respectively, indicating the ability to afford transport costs. According to the Bangkok Travel Demand Survey 2022 (conducted by OTP), the majority of trips were for commuting (54%), followed by shopping (23%). Despite high reliance on private vehicles, which account for 81.5% of total trips, public transport comprises 14.9% of travel, with local buses holding the largest share at 4.4%. Songthaews are used more frequently than urban rail, 2.7% with shares of and 2.1%, respectively. Additionally, there is significant demand for motorcycle taxis and regular taxis, with shares of 2.5% and 2.0%, respectively.

4. Fare Structure and Payment Methods

In Bangkok, fare structures and payment methods vary widely across transport modes. Formal fixed-route services, like buses and the BRT, use standardized fares-fixed for non-airconditioned buses and the BRT, while distancebased for air-conditioned buses. On-demand services, including taxis, motorcycle taxis, and tuktuks, offer flexible pricing models: taxis use metered fares, motorcycle taxis charge by distance without a meter, and tuktuks use negotiable fares. Ride-hailing platforms add further options with either predetermined fares or distance-based pricing plus a hailing fee, sometimes with surge pricing.

Each transport service in Bangkok has distinct payment methods. Buses primarily use cash, though some also accept cards, QR codes, or stored-value cards like the Rabbit card¹⁰ shared with the Bangkok Mass Transit System (BTS). Informal modes and traditional taxis rely mostly on cash, while ride-hailing platforms support mobile payments, including e-wallets, with some still allowing cash payments.



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COVID-19 Although the pandemic and QR technology have accelerated a shift toward cashless payments, cash remains widely used, especially for informal and traditional Bangkok's fare transport modes. However, system and payment methods lack integration across modes, adding complexity and cost for multi-modal travel. This contrasts with cities like Tokyo, where unified fare systems and payment methods allow a single payment to simplify transfers across multiple transport types.

5. Challenges and Opportunities

There are three main challenges and opportunities to enhance road public transport in Bangkok including 1) Challenges in Enhancing Road Public Transport Coverage, 2) Integration challenges, and 3) Opportunities in embracing new technologies.

1) Challenges in Enhancing Road Public Transport Coverage

As previously mentioned, the current bus network, a core component of Bangkok's roadbased public transport system, has developed through a demand-driven mechanism. While the Department of Land Transport (DLT) has developed a master plan for bus services in the Bangkok Metropolitan Area, ¹¹ two key challenges hinder its effective implementation.

The first challenge is the absence of a governing body with the authority to enforce the master plan's execution. Without such authority, certain routes, particularly unprofitable ones, are implemented, not resulting in inefficiencies and service gaps. The second challenge is the lack of a government policy to subsidize operating costs. Currently, neither private operators nor the BMTA, a state-owned enterprise, receive direct financial support from the government. Without subsidies, BMTA struggles to operate low-demand difficult routes, making it to ensure



comprehensive and equitable service. Addressing these challenges requires policies that recognize public bus services as a fundamental public good, including subsidies for non-profitable routes or a concession model that combines profitable and unprofitable routes to achieve broader coverage.

2) Integration Challenges

Bangkok's transport system faces three key integration challenges: intermodal integration, payment method integration, and fare system integration.

①Intermodal network integration

Intermodal integration in Bangkok remains a challenge and is not yet fully seamless or effective, largely due to the absence of a unified planning framework that incorporates all transport modes. The fragmented approach taken by various agencies highlights this issue. For example, while the DLT has developed a master plan for local bus services, it does not adequately integrate the networks of other road-based public transport modes under its jurisdiction, such as vans, songthaews, silorleks, taxis, motorcycle taxis, and tuktuks. Even if the DLT were to create a comprehensive plan encompassing all road-based public transport, it lacks the authority to integrate rail and water transport systems, which are managed separately by the Department of Rail Transport and the Port Authority.

To address these challenges, the establishment of a centralized planning authority with overarching power over the DLT, the Department of Rail Transport, and the Port Authority is crucial. Such an authority could develop a comprehensive intermodal integration plan, connecting road, rail, water, and air transport systems. This approach would create seamless connectivity between transport modes, fostering a more efficient, user-friendly network for Bangkok's residents and visitors.

②Payment method integration

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The Office of Transport and Traffic Policy and Planning (OTP) under the Ministry of Transport initiated the Mangmoom Card¹² project to enable commuters to use a single card across multiple transport modes, including buses and urban rail services. However, its implementation has faced significant challenges. A key issue is the lack of integration with the BTS Skytrain system, which relies on its own widely used Rabbit Card. Additionally, an absence of a centralized authority to mandate the adoption of the Mangmoom Card across all transport operators has resulted in fragmented implementation, hindering the goal of seamless fare integration. An alternative opportunity for a unified payment method lies in the use of credit and debit cards. Currently, some buses and the MRT (an urban rail operator) accept these cards, presenting a potentially effective standard payment option. However, this raises concerns about accessibility for unbanked individuals,¹³ highlighting the need for an inclusive payment solution that serves all commuters.

③Fare system integration

For road public transport in Bangkok, fare calculation is relatively straightforward, relying primarily on fixed rates and distancebased pricing. This simplicity eliminates the need for complex fare calculation infrastructure, with the exception of taxis, which use standalone meters. However, the lack of a fare calculation system poses significant challenges for fare system integration. For instance, implementing transfer discounts, such as waiving the flag-down fare when transferring from another public transport mode, becomes difficult without a centralized system to coordinate fare adjustments across services. Moreover, such fare system integration can hardly be achieved without a standardized payment method across all public transport modes.



Opportunities in embracing new technologies

The emergence of new transport technologies, such as Connected, Automated, Shared, and Electrified vehicles (CASE), presents significant opportunities to transform roadbased public transport services in Bangkok. Beyond the technological perspective, external developments unique to Bangkok further shape these opportunities. Politically, the Thai government's policies promoting smart cities and low-carbon urban mobility provide а supportive framework for integrating CASE technologies into Bangkok's extensive bus and van network. The city's chronic air pollution and rising public awareness of environmental issues have created urgency around electrifying buses and other road-based public transport, which would significantly reduce emissions and improve urban air quality. Bangkok's aging population and labor shortages in the transport sector highlight the potential of automated vehicles to ensure reliable bus services, especially in less-accessible areas. Furthermore, shared mobility solutions can city's address the notorious traffic congestion by complementing public transport and enhancing first- and last-mile connectivity for commuters. To realize these benefits, Bangkok requires a robust policy framework, focused investment in electrification and automation, and targeted measures to integrate these technologies into its unique urban and transport landscape.

<References>

- Bangkok Travel Demand Survey (2023), Office of Transport and Traffic Policy and Planning
- 2) Informal transport refers to modes that started out as unregulated but, over time, have come to be regulated to some extent by the Department of Land Transport.



- 3) Source: Cumulative Number of Registered Vehicles as of October 2024, Department of Land Transport
- 4) Source: Cumulative Number of Registered Vehicles as of October 2024, Department of Land Transport
- 5) Last updated in January 2023. Thai Government Gazette 12th January 2023 page 11
- 6) Announcement of Bangkok's committee on prescribing locations for waiting for passengers and guidelines for issuing the letter to public motorcycle drivers certifying the use of public motorcycle in Bangkok 2020 (ประกาศคณะกรรมการประจำกรุงเทพมหานคร เรื่อง ้ กำหนดสถานที่ตั้งวินและหลักเกณฑ์การออกหนังสือรับรองการใช้ รถจักรยานยนต์สาธารณะในเขตกรุงเทพมหานคร พ.ศ. 2563)
- 7) Ministerial regulation on ride-hailing cars 2021 (กฎกระทรวง รถยนต์รับจ้างผ่านระบบอิเล็กทรอนิกส์ พ.ศ. 2564) and Announcement of Bangkok's committee on guidelines for issuing a certificate for the use of public motorcycles to provide services through ride-hailing applications in Bangkok 2022 (ประกาศคณะกรรมการประจำกรุงเทพมหานคร เรื่อง หลักเกณฑ์การออกหนังสือรับรองการใช้รถจักรยานยนต์สาธารณะสำหรับ การให้บริการผ่านแอพพลิเคชั่นในเขตกรุงเทพมหานคร พ.ศ. 2565)
- 8) https://muvmi.co
- 9) Provincial household income and its distribution B.E. 2564 (2021),National Statistical Office
- 10) https://rabbit.co.th/card/
- 11) Announcement of the Central Land Transport Control Committee No. 2130 (B.E. 2564) on the Determination of 258 Bus Routes in Route Category 1 in Bangkok and Neighboring Provinces with Connected Routes (ประกาศ คณะกรรมการควบคุมการขนส่งทางบกกลาง ฉบับที่ 2130 (พ.ศ. 2564) เรื่อง กำหนดเส้นทางสำหรับการขนส่งประจำทางด้วยรถโดยสาร หมวด 1 ในเขต กรุงเทพมหานครและจังหวัดที่มีเส้นทางต่อเนื่อง จำนวน 258 เส้นทาง)
- 12) https://www.thaipbs.or.th/news/content/272 912
- 13) Unbanked individuals, defined as those without access to financial services. accounted for 0.3% of the population in 2020,





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