



Planning Urban Mobility in Transition: Transportation Futures in Major Indian Cities and Their Parallels on the United States East Coast

Dr. Maulsri Jha*

¹Senior Project Manager and Transportation Planner in Seattle, Washington, USA.

*Corresponding author(s):

DoI: <https://doi.org/10.5281/zenodo.22165961>

Dr. Maulsri Jha, Senior Project Manager and Transportation Planner in Seattle, Washington, USA.

Email: jha.maulsri@gmail.com

Citation:

Dr. Maulsri Jha, (2026). Planning Urban Mobility in Transition: Transportation Futures in Major Indian Cities and Their Parallels on the United States East Coast, International Journal of Multidisciplinary Research Transactions, 8(6), 69–87. <https://doi.org/10.5281/zenodo.22165961>

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Accepted: 15 June 2026

Available online: 18 June 2026

Abstract

Major Indian cities are entering a consequential phase of transportation development. Rapid metro construction, bus electrification, digital fare integration, transit-oriented development, and renewed attention to walking and cycling coexist with fragmented governance, inadequate bus supply, unsafe streets, unequal accessibility, and continued road expansion. This article examines the state of transportation planning in Delhi, Mumbai, Bengaluru, Ahmedabad, Pune, and Kochi, then compares their emerging trajectories with New York City, Boston, Washington, DC, and Philadelphia. Using a comparative case-study synthesis of policy documents, agency reports, and scholarly literature, the article argues that the most important convergence is not technological but institutional: both settings are moving from project-centered planning toward accessibility, network management, decarbonization, resilience, and distributional equity. Yet convergence remains partial. Indian cities must accommodate high levels of walking, informal and semi-formal mobility, and rapid urbanization under comparatively constrained municipal capacity, while East Coast cities must modernize mature infrastructure, reverse automobile-oriented street allocation, and repair historically unequal investment. The cases show that metro expansion produces its greatest value when combined with frequent buses, safe station access, integrated fares, land-use coordination, and accountable metropolitan governance. The article concludes with a planning agenda centered on multimodal accessibility, bus-first investment,

universal street design, climate adaptation, interoperable mobility data, and outcome-based evaluation.

Keywords: Urban Transportation Planning, India, East Coast Cities, Public Transit, Active Mobility, Transit-Oriented Development, Transport Equity, Climate Resilience.

1. Introduction

Urban transportation planning is being redefined by the simultaneous pressures of growth, decarbonization, public health, fiscal constraint, and technological change. These pressures are especially visible in India, where metropolitan populations and travel demand continue to expand rapidly, and in the older urban regions of the United States East Coast, where dense settlement and extensive transit networks coexist with aging infrastructure and long-standing spatial inequality. The two contexts differ sharply in income, motorization, institutional history, and urban form. Nevertheless, both are confronting a shared planning question: how can cities shift from moving vehicles to providing equitable, reliable, and low-carbon access to daily opportunities?

India's urban mobility landscape is often described through the extraordinary expansion of metro rail. By May 2025, the national operational metro network had reached 1,013 km in 23 cities, compared with 248 km in five cities in 2014, while reported average daily ridership exceeded 11.2 million passenger journeys (Press Information Bureau, 2025). This expansion is significant, but it can obscure the continued importance of buses, walking, cycling, autorickshaws, shared vehicles, and informal services. It can also encourage an infrastructure-led understanding of progress in which kilometers constructed substitute for measures of accessibility, affordability, safety, and service quality.

East Coast U.S. cities present an inverse problem. New York, Boston, Philadelphia, and Washington possess mature rail systems and relatively transit-supportive urban form, but much

of their infrastructure is old, expensive to maintain, and vulnerable to flooding and extreme heat. Their current planning agendas emphasize bus-network redesign, congestion management, complete streets, accessibility retrofits, electrification, and climate adaptation. New York's congestion relief program, implemented in January 2025, represents a particularly notable attempt to manage road demand and generate revenue for transit rather than continually expanding road capacity (New York City Department of Finance, 2025).

This article compares these trajectories through a structured qualitative synthesis. It asks three questions. First, what institutional, modal, and spatial characteristics define the current state of transportation planning in major Indian cities? Second, which trends are likely to shape the next decade? Third, where do these trends parallel, and where do they diverge from, those visible in major East Coast U.S. cities? The central argument is that the most productive comparison lies not in copying individual projects but in examining how both settings are moving toward network integration, accessibility-based planning, demand management, and climate-responsive investment.

2. Analytical Framework and Method

The comparison adopts accessibility as its principal evaluative lens. Accessibility concerns the ease with which people can reach employment, education, health care, markets, and social life, rather than the speed with which vehicles traverse a corridor (Geurs & van Wee, 2004). This distinction matters because a high-speed metro line may offer limited benefit to low-income households if feeder services are infrequent, sidewalks are unsafe, fares are unaffordable, or housing near stations becomes inaccessible. Conversely, modest bus-priority or pedestrian improvements may produce large accessibility gains when they connect dense neighborhoods to essential destinations.

The analysis uses a most-different-systems logic. Delhi, Mumbai, Bengaluru, Ahmedabad, Pune, and Kochi represent varied combinations of scale, governance, transport technology, and urban form. New York City, Boston, Washington, DC, and Philadelphia provide East Coast comparisons with legacy rail, strong central-city transit demand, and increasingly explicit climate and equity mandates. Evidence is drawn from national and metropolitan policy documents, transport-agency reports, multilateral development publications, and peer-reviewed research. The article is interpretive rather than causal. Its case studies identify recurring planning mechanisms and institutional constraints, not statistically generalizable effects.

Five dimensions organize the comparison: governance and metropolitan coordination; public transport network structure; walking, cycling, and street allocation; land use and transit-oriented development; and decarbonization, technology, and resilience. Equity is treated as a cross-cutting criterion because transport disadvantage emerges through the interaction of income, gender, disability, caste and social identity, housing location, service hours, and exposure to traffic danger or pollution.

3. The Current State of Transportation Planning in Major Indian Cities

Indian urban transport policy has gradually shifted from road construction toward the movement of people. The National Urban Transport Policy emphasized public transport and non-motorized modes, while the Metro Rail Policy and National Transit Oriented Development Policy, both issued in 2017, linked major rail investment to comprehensive mobility planning, feeder systems, land-use integration, and value capture (Ministry of Urban Development, 2017a, 2017b). In constitutional and administrative practice, however, urban development is primarily a state responsibility, central guidance is not uniformly binding, and implementation is distributed across state departments, urban local bodies, development authorities, traffic police, special-purpose transit corporations, and parastatal agencies (Verma et al., 2021).

This institutional fragmentation is the central condition of Indian transportation planning. A metropolitan area may have one agency constructing metro rail, another operating buses, several municipalities controlling local streets, a state public works department managing arterials, and traffic police determining intersection operations. Unified Metropolitan Transport Authorities have been proposed repeatedly, but many remain weak, incomplete, or advisory. The result is a bias toward capital projects with clear institutional sponsors and financing packages, while network integration, maintenance, pedestrian access, parking management, and bus operations receive less consistent attention.

Travel behavior also complicates conventional planning categories. Walking and public or shared transport remain essential, especially for low-income households, even as two-wheeler and car ownership rise. Informal and semi-formal modes often fill gaps left by fixed-route transit, yet they may be regulated primarily as traffic problems rather than planned as components of an integrated system. Gendered safety concerns, inaccessible vehicles and footways, and the spatial mismatch between affordable housing and employment further constrain effective access. Road traffic injury remains a major public-health concern, and the exposure burden falls disproportionately on pedestrians, cyclists, and motorcyclists (World Health Organization, 2023).

A second defining characteristic is uneven modal investment. Metro systems attract political support because they are visible, technologically modern, and capable of moving large passenger volumes on dense corridors. Bus systems, although more flexible and usually less capital intensive, frequently suffer from insufficient fleets, slow speeds, weak contracting capacity, and unstable operating finance. The national PM-eBus Sewa program seeks to deploy 10,000 electric buses through a public-private partnership model, signaling both the importance

of bus renewal and the fiscal difficulties faced by city operators (Ministry of Housing and Urban Affairs, 2023). Electrification can reduce local emissions and operating costs, but it does not by itself resolve route design, frequency, depot location, labor capacity, curb access, or traffic delay.

A third characteristic is the persistence of project-based appraisal. Traditional feasibility studies emphasize forecast ridership, construction cost, and time savings. Contemporary best practice increasingly calls for distributional accessibility, safety, land-use effects, emissions, resilience, and lifecycle operations to be evaluated together. This transition is underway but incomplete. The most promising Indian initiatives are therefore those that connect infrastructure to institutional reform and the quality of the entire journey.

4. Indian City Case Studies

Delhi: Scale, integration, and the first-and-last-mile problem. Delhi Metro is the country's most influential urban transport project. Its extensive regional network has reshaped travel across the National Capital Region and demonstrated that high-capacity rail can be delivered and operated at metropolitan scale. The system has also pursued smart cards, interchange integration, station-area planning, and feeder connections. Yet Delhi illustrates the limits of rail-led planning. Many passengers encounter discontinuous sidewalks, unsafe arterial crossings, unregulated curb activity, heat exposure, and unreliable feeder services before reaching a station. The larger transport system remains divided among multiple bus, road, land-use, municipal, and enforcement bodies. Delhi's next planning frontier is therefore not simply additional metro mileage. It is the conversion of rail stations into universally accessible multimodal nodes, combined with high-frequency buses, safe walking networks, parking restraint, and coordinated regional governance.

Mumbai: Rail dependence, multimodal expansion, and climate exposure. Mumbai's suburban railway carries an exceptionally large share of metropolitan travel and has long supported dense, transit-oriented settlement. Metro construction, suburban rail modernization, bus reform, coastal transport proposals, and new road infrastructure now proceed simultaneously. This portfolio can expand capacity, but it also creates tension between transit investment and highway-led development. The Mumbai Urban Transport Project demonstrated the value, and difficulty, of combining rail improvements, resettlement, institutional coordination, and traffic management at metropolitan scale (World Bank, 2011). Future planning must account for sea-level rise, extreme rainfall, drainage failure, and heat, while protecting affordable access to stations. Resilience cannot be confined to engineering assets; it must include operational redundancy, evacuation access, informal-settlement vulnerability, and the location of lower-income households displaced by rising land values.

Bengaluru: Technology-led growth and the bus-metro relationship. Bengaluru's dispersed employment geography and rapid peripheral growth have generated severe congestion and long commutes. Metro expansion is necessary, but the city's travel market cannot be served by radial rail alone. The Bengaluru Metropolitan Transport Corporation remains crucial because buses can connect cross-town and peripheral origins to distributed job centers. Bus priority, frequent service, integrated ticketing, and street management are therefore more consequential than treating buses solely as metro feeders. Bengaluru also exemplifies the promise and risk of data-intensive planning. Real-time information, app-based trip planning, and open transit data can improve usability, but platform integration should not displace investment in dependable service or exclude passengers without smartphones, bank accounts, or digital literacy.

Ahmedabad: Bus rapid transit as institutional innovation. Ahmedabad's Janmarg bus rapid transit system became a prominent Indian example of dedicated lanes, median stations, off-board fare collection, and a special-purpose operating structure. Its early performance showed that surface transit could receive infrastructure and design attention comparable to rail (Cervero, 2013). Over time, ridership and service quality have faced pressures associated with network coverage, integration with municipal buses, land development, and competition for street space. The lesson is not that bus rapid transit is inherently successful or unsuccessful. Rather, BRT performance depends on continuous enforcement, frequent operations, fare and route integration, pedestrian access, and the willingness to preserve road space for high-capacity public use.

Pune: Complete streets and implementation capacity. Pune has been a leading Indian site for pedestrian and cycling policy, street design guidance, and experiments with complete-street corridors. These initiatives mark an important departure from viewing footpaths as residual space. They recognize streets as public infrastructure that must serve walking, vending, transit access, drainage, trees, and social life. Yet project continuity remains vulnerable to political change, utility cuts, parking pressure, and inconsistent maintenance. Pune illustrates that active-mobility planning is less a matter of producing a design manual than creating durable budgeting, interdepartmental coordination, construction supervision, and post-occupancy evaluation.

Kochi: Multimodal integration across land and water. Kochi offers a distinctive model because the metro institution has pursued rail, feeder services, non-motorized access, and water transit as parts of a broader mobility system. Its annual reporting separately identifies expenditure on non-motorized transport initiatives, indicating an institutional scope wider than train operations alone (Kochi Metro Rail Limited, 2024). The Water Metro expands the meaning of metropolitan

transit by using the region's geography rather than treating waterways as barriers. Kochi's experience suggests that medium-sized cities may gain more from integrated networks tailored to local form than from replicating a uniform metro-centered model.

5. Emerging Trends in Indian Urban Transportation

The first major trend is a shift from isolated corridors to integrated networks. National Common Mobility Card implementation, open journey-planning interfaces, coordinated timetables, and unified passenger information are likely to expand. True integration, however, requires more than a common payment medium. Fares must be structured so transfers do not penalize passengers, service planning must recognize complete journeys, and institutions must share data while protecting privacy and commercial sensitivity.

Second, electric mobility will move from demonstration to fleet and energy-system planning. Electric buses are likely to be the most socially valuable element because they combine decarbonization with collective mobility. Their success will depend on gross-cost contracting capacity, reliable electricity supply, depot and terminal land, charger interoperability, battery performance under heat and congestion, and workforce training. Electrification of two-wheelers, autorickshaws, and delivery fleets will proceed rapidly, creating new questions about charging in dense neighborhoods, battery safety, curb space, and grid peaks.

Third, Indian cities will increasingly adopt transit-oriented development and land-value instruments. The policy opportunity is substantial: station-area density can shorten trips, support ridership, and help finance infrastructure. The equity risk is equally substantial. If TOD primarily produces high-cost housing and commercial real estate while displacing renters, vendors, and small firms, it may increase rather than reduce transport disadvantage. Inclusive

TOD requires affordable housing, secure vending space, public facilities, safe walking access, and value-capture mechanisms whose revenues visibly improve local mobility.

Fourth, active mobility will become more closely tied to climate adaptation and public health. Shade, trees, permeable surfaces, drainage, resting places, lighting, and universal design are essential mobility infrastructure in hot and flood-prone cities. Walking and cycling networks will be judged not only by their length but by continuity, intersection safety, thermal comfort, and access for children, older adults, and disabled people. Tactical projects may accelerate change, but permanent maintenance funding will determine whether gains endure.

Fifth, mobility planning will become increasingly data-rich and algorithmic. Automatic vehicle location, account-based ticketing, computer vision, crowdsourced mapping, and digital twins can improve operations and scenario testing. The planning challenge is to avoid confusing data abundance with representativeness. Informal trips, unpaid care travel, walking within neighborhoods, and the needs of digitally excluded residents are often weakly captured. Ethical governance should specify data minimization, public purpose, transparency, retention, and avenues to contest automated decisions.

Sixth, climate resilience will shift from a project safeguard to a network-planning principle. Heat can affect passengers, workers, batteries, rails, and power systems; intense rainfall can disable underpasses, depots, tunnels, and access roads; coastal flooding can sever entire travel markets. Agencies will need asset-level risk registers, redundant routes, emergency operating plans, climate-adjusted design standards, and investment prioritization based on service consequences rather than asset value alone.

Finally, appraisal will gradually move toward outcomes. The relevant measures will include the number of jobs reachable within a reasonable time and cost, access disparities by gender and income, fatalities and serious injuries, service reliability, household transport burden, emissions, and exposure to extreme heat or pollution. This change is critical because it can redirect attention from ribbon-cutting toward the performance of the whole urban mobility system.

6. Parallels in East Coast U.S. Cities

New York City: Demand management and street reallocation. New York offers the strongest East Coast parallel to India's search for multimodal integration because transit is indispensable and road space is intensely contested. The NYC Streets Plan frames safety, accessibility, and street quality as citywide responsibilities, while bus lanes, protected bicycle facilities, pedestrian plazas, and curb-management programs seek to reallocate scarce public space (New York City Department of Transportation, 2021). Congestion pricing adds a mechanism rarely implemented in the United States: charging for scarce road capacity while directing revenue toward transit. The comparison with Indian cities is instructive. Both face pressure to accommodate growing travel without allowing private vehicles to consume a disproportionate share of street space. Yet New York begins with higher institutional capacity and a mature transit market, whereas Indian cities must often build basic bus and pedestrian systems while motorization is still rising.

Boston: Network redesign and resilience of legacy infrastructure. Greater Boston's planning agenda combines modernization of an old rail system with a comprehensive bus-network redesign. The redesign responds to demographic and employment changes and was shaped by more than 20,000 public comments (City of Malden, 2022). This resembles Bengaluru's need to update bus networks for decentralized job geography rather than preserving routes inherited from an earlier urban structure. Boston also illustrates the growing importance of climate

adaptation. Coastal and riverine flooding, intense precipitation, and heat threaten tunnels, power systems, stations, and surface operations. Like Mumbai and Kochi, Boston must plan for both asset protection and network redundancy, although its adaptation challenge is dominated by aging legacy infrastructure rather than rapid network construction.

Washington, DC: Regional governance, bus reform, and equity. The Washington region crosses district, state, county, and municipal boundaries, making it a useful comparison with India's multi-jurisdictional metropolitan regions. WMATA's Better Bus initiative undertook a comprehensive reconsideration of routes and service in a system that provides more than 500,000 bus trips on a typical day (Washington Metropolitan Area Transit Authority, n.d.). The District's moveDC plan explicitly connects safety, sustainability, mobility, and equity (District Department of Transportation, 2021). These initiatives parallel Indian proposals for unified metropolitan authorities and comprehensive mobility plans. In both settings, the central difficulty is converting regional goals into coordinated street priority, stable operating funds, and locally legitimate service changes.

Philadelphia: Equity, state of good repair, and neighborhood accessibility. Philadelphia's dense rowhouse neighborhoods and extensive bus, trolley, subway, and regional rail networks create favorable conditions for low-car mobility. Yet service reliability, aging assets, fiscal instability, and unequal neighborhood investment constrain the system. Planning increasingly links transit improvement with Vision Zero, complete streets, and access to jobs. Philadelphia resembles many Indian cities in the importance of surface transit and walking, though its population growth is slower and its infrastructure is older. The shared lesson is that basic reliability and safe access often yield greater social value than technologically impressive expansion.

Across the East Coast, a common planning transition is visible. Agencies are moving away from peak-period, central-business-district commuting as the sole organizing market and toward all-day, cross-town, and essential-worker travel. Indian systems have always served diverse trip purposes, but formal planning has not consistently represented them. Both contexts therefore benefit from service standards based on frequency, span, transfer quality, and access to essential destinations rather than conventional commuter volumes alone.

7. Comparative Discussion

The first parallel is the return of the bus as a strategic mode. Rail remains indispensable in Delhi, Mumbai, New York, Boston, Washington, and Philadelphia, but buses provide the geographic coverage and adaptability required by changing metropolitan form. In both countries, bus planning is increasingly focused on network redesign, priority lanes, electrification, passenger information, and performance-based contracting. The divergence lies in baseline conditions. East Coast agencies generally operate established networks with formal labor and funding structures, while many Indian cities need far larger fleets, new operating institutions, and reliable municipal finance.

The second parallel is a shift from mobility to accessibility. Transit-oriented development, complete streets, fare integration, and bus-network redesign all reflect recognition that infrastructure has value only through the opportunities it connects. Accessibility also exposes distributional questions. A new line can increase metropolitan connectivity while providing limited benefit to residents priced out of the station area. A protected bicycle lane can improve safety while failing to serve trips made by caregivers if it is disconnected from schools, markets, and transit. Both settings need disaggregated accessibility analysis before and after investment.

The third parallel is the politicization of street space. Dedicated bus lanes, cycle tracks, wider sidewalks, delivery zones, outdoor commerce, parking, and private vehicle movement compete for finite right-of-way. Technical design cannot eliminate these conflicts because allocation expresses public priorities. New York's congestion charge and street plan make this conflict explicit. Ahmedabad's BRT lanes, Pune's complete streets, and Delhi's station access projects reveal the same issue. Successful implementation requires legal authority, enforcement, public communication, and visible service benefits.

The fourth parallel is digital integration. Account-based fares, real-time arrivals, open data, and app-based journey planning can make fragmented networks appear coherent to passengers. Yet technology can only reveal or simplify service that exists. It cannot compensate for low frequency, unsafe access, overcrowding, or missing sidewalks. In both India and the United States, digital systems also raise concerns about surveillance, proprietary control, cybersecurity, and exclusion of cash-dependent riders.

The fifth parallel is climate risk, but the exposure pathways differ. Mumbai, Kochi, New York, and Boston face coastal and pluvial flooding; Delhi and many inland cities face extreme heat and intense rainfall; Washington and Philadelphia face heat, flooding, and aging drainage. East Coast cities must retrofit century-old assets, while Indian cities have an opportunity to embed resilience in major new construction. Both need to protect passengers during the access and waiting portions of trips, which are often excluded from asset-centered resilience plans.

Important differences caution against policy transfer by analogy. Indian cities generally have higher walking shares, larger informal economies, more mixed traffic, lower per-capita municipal resources, and faster physical expansion. East Coast cities generally have stronger

regulatory institutions, higher labor and construction costs, mature transit assets, and entrenched automobile-oriented suburbs. A policy such as congestion pricing may be technically attractive in an Indian metropolis, but its distributional and administrative design must account for informal work, uneven enforcement, and the availability of alternatives. Conversely, East Coast cities can learn from the flexible, high-occupancy, and demand-responsive practices of Indian paratransit, but only if labor protections, safety, accessibility, and integration are addressed.

The comparison ultimately suggests that institutional capacity is itself transportation infrastructure. Agencies need authority to coordinate land use and mobility, stable revenue for operations and maintenance, professional staff, interoperable data, transparent performance measures, and sustained public engagement. Without these capacities, capital investment produces disconnected assets. With them, even incremental interventions can accumulate into a coherent network.

8. Policy and Planning Agenda

A first priority is to adopt accessibility-based metropolitan plans. Indian comprehensive mobility plans and U.S. long-range transportation plans should map access to employment, education, health care, food, and public services by mode, income, gender, age, disability, and time of day. Scenario evaluation should disclose who gains and who loses, not only aggregate travel-time savings.

A second priority is bus-first investment. Cities should establish minimum service standards, expand frequent all-day networks, protect buses from congestion, modernize depots, and fund operations alongside vehicles. Electric-bus procurement should be integrated with route planning, electricity capacity, maintenance, labor training, and lifecycle battery management.

Bus-priority corridors should be evaluated through person-throughput and reliability rather than vehicle delay.

A third priority is universal first-and-last-mile access. Every rapid-transit project should include a funded walkshed and feeder plan extending beyond the station property. Continuous footways, safe crossings, shade, drainage, lighting, wayfinding, cycle parking, accessible stops, and managed pick-up areas should be treated as core project elements. Station accessibility audits should include users with mobility, visual, hearing, and cognitive disabilities.

A fourth priority is equitable transit-oriented development. Land-value capture should fund local transport and affordable housing, while anti-displacement measures should protect renters, vendors, and small businesses. Development intensity should be linked to walking conditions, public services, and transit capacity rather than applied as a purely financial zoning bonus.

A fifth priority is integrated demand and curb management. Parking prices, loading zones, bus lanes, cycle facilities, and congestion charges should be planned as a single street-management system. Revenue use must be transparent and visibly connected to better alternatives. Equity analysis should distinguish between low-income drivers and low-income households, many of whom do not own cars but bear the effects of traffic and inadequate transit.

A sixth priority is climate-ready network management. Agencies should identify critical links whose failure would isolate communities or disable essential services, then prioritize redundant routes, drainage, flood barriers, heat-resistant equipment, shade, emergency communications, and rapid-recovery protocols. Capital programming should incorporate future climate conditions and the social consequences of service interruption.

Finally, cities should build accountable data institutions. Public agencies need common data standards, privacy protections, open performance dashboards, and independent evaluation. Measures should include frequency, reliability, crowding, affordability, serious injuries, emissions, accessibility, and user experience. The aim is not a technologically seamless city in the abstract, but a system in which people can make ordinary trips safely, affordably, and with dignity.

9. Conclusion

Transportation planning in India's major cities is neither a simple story of modernization nor a uniform transition toward sustainable mobility. It is a contested restructuring in which metro expansion, electric buses, digital systems, complete streets, and transit-oriented development compete with road building, institutional fragmentation, unsafe access, and unequal urbanization. The strongest initiatives recognize that mobility is a networked public service rather than a collection of megaprojects.

East Coast U.S. cities reveal a related transition from maintaining inherited systems toward managing demand, redesigning buses, reallocating streets, repairing inequities, and adapting infrastructure to climate change. Their experience underscores the importance of stable institutions and long-term operations, while Indian cases demonstrate the value of flexible multimodal systems and the urgency of planning before automobile dependence becomes further entrenched.

The future in both settings will be determined less by any single technology than by the integration of land use, transit operations, street design, pricing, climate adaptation, and public accountability. Metro rail, electric vehicles, digital fares, and artificial intelligence can support this transition, but they are means rather than ends. The appropriate measure of success is

whether urban residents, especially those with the fewest resources and greatest mobility constraints, can reach daily opportunities safely, reliably, affordably, and under increasingly difficult climate conditions.

Acknowledgement

The authors have no acknowledgements to declare.

Funding

This study has not received any funding from any institution/agency.

Conflict of Interest/Competing Interests

No conflict of interest.

Data Availability

The raw data supporting the findings of this research paper will be made available by the authors upon a reasonable request.

REFERENCES

- [1]. Badami, M. G., & Haider, M. (2007). An analysis of public bus transit performance in Indian cities. *Transportation Research Part A: Policy and Practice*, 41(10), 961–981. <https://doi.org/10.1016/j.tra.2007.06.002>
- [2]. Cervero, R. (2013). Bus rapid transit (BRT): An efficient and competitive mode of public transport. Institute of Urban and Regional Development, University of California, Berkeley.
- [3]. City of Malden. (2022). MBTA bus network redesign. <https://www.cityofmalden.org/937/MBTA-Bus-Network-Redesign>
- [4]. District Department of Transportation. (2021). moveDC 2021: The District of Columbia's multimodal long-range transportation plan. <https://movedc.dc.gov/>
- [5]. Geurs, K. T., & van Wee, B. (2004). Accessibility evaluation of land-use and transport strategies: Review and research directions. *Journal of Transport Geography*, 12(2), 127–140. <https://doi.org/10.1016/j.jtrangeo.2003.10.005>
- [6]. Kochi Metro Rail Limited. (2024). Annual report 2023–24. <https://kochimetro.org/annual-reports/>
- [7]. Ministry of Housing and Urban Affairs. (2023). PM-eBus Sewa. Government of India. <https://pm-ebus-sewa.mohua.gov.in/>
- [8]. Ministry of Urban Development. (2006). National urban transport policy. Government of India.
- [9]. Ministry of Urban Development. (2017a). Metro rail policy, 2017. Government of India.
- [10]. Ministry of Urban Development. (2017b). National transit oriented development policy. Government of India.
- [11]. New York City Department of Finance. (2025). Congestion pricing program. <https://portal.311.nyc.gov/article/?kanumber=KA-03612>
- [12]. New York City Department of Transportation. (2021). NYC streets plan. <https://www.nyc.gov/html/dot/html/about/nyc-streets-plan.shtml>
- [13]. Press Information Bureau. (2025, August 9). India's metro revolution: From miles to milestones. Government of India. <https://www.pib.gov.in/PressNoteDetails.aspx?ModuleId=3&NoteId=155002&lang=2®=3>
- [14]. Pucher, J., Korattyswaropam, N., Mittal, N., & Ittyerah, N. (2005). Urban transport crisis in India. *Transport Policy*, 12(3), 185–198. <https://doi.org/10.1016/j.tranpol.2005.02.008>
- [15]. Tiwari, G. (2011). Key mobility challenges in Indian cities. *International Transport Forum Discussion Papers*, 2011/18. OECD Publishing. <https://doi.org/10.1787/5kg9mq4w6b6g-en>

-
- [16]. Verma, A., Harsha, V., & Subramanian, G. H. (2021). Evolution of urban transportation policies in India: A review and analysis. *Transportation in Developing Economies*, 7, Article 25. <https://doi.org/10.1007/s40890-021-00136-1>
 - [17]. Washington Metropolitan Area Transit Authority. (n.d.). Better Bus: About the project. <https://www.wmata.com/initiatives/plans-and-projects/better-bus/about-the-project.html>
 - [18]. World Bank. (2011). Mumbai Urban Transport Project. <https://projects.worldbank.org/>
 - [19]. World Bank. (2018). Mobility and congestion in urban India. World Bank Policy Research Working Paper No. 8546. <https://openknowledge.worldbank.org/handle/10986/30250>
 - [20]. World Bank. (2024). Promoting livable cities by investing in urban mobility. <https://www.worldbank.org/en/results/2024/03/13/promoting-livable-cities-by-investing-in-urban-mobility>
 - [21]. World Health Organization. (2023). Global status report on road safety 2023. <https://www.who.int/publications/i/item/9789240086517>

Author Biography

Dr. Maulsri Jha is a senior project manager and transportation planner in Seattle, Washington, USA. She has more than 10 years of experience in commute program planning, sustainable mobility, employee transportation services, data-driven analysis, and cross-functional program delivery. She has been educated in India, Germany, and the USA, with a PhD in Climate Resilience Planning from Portland State University. She is interested in the fields of climate, transportation, and environmental planning, and the ways in which these areas interact with and influence each other.