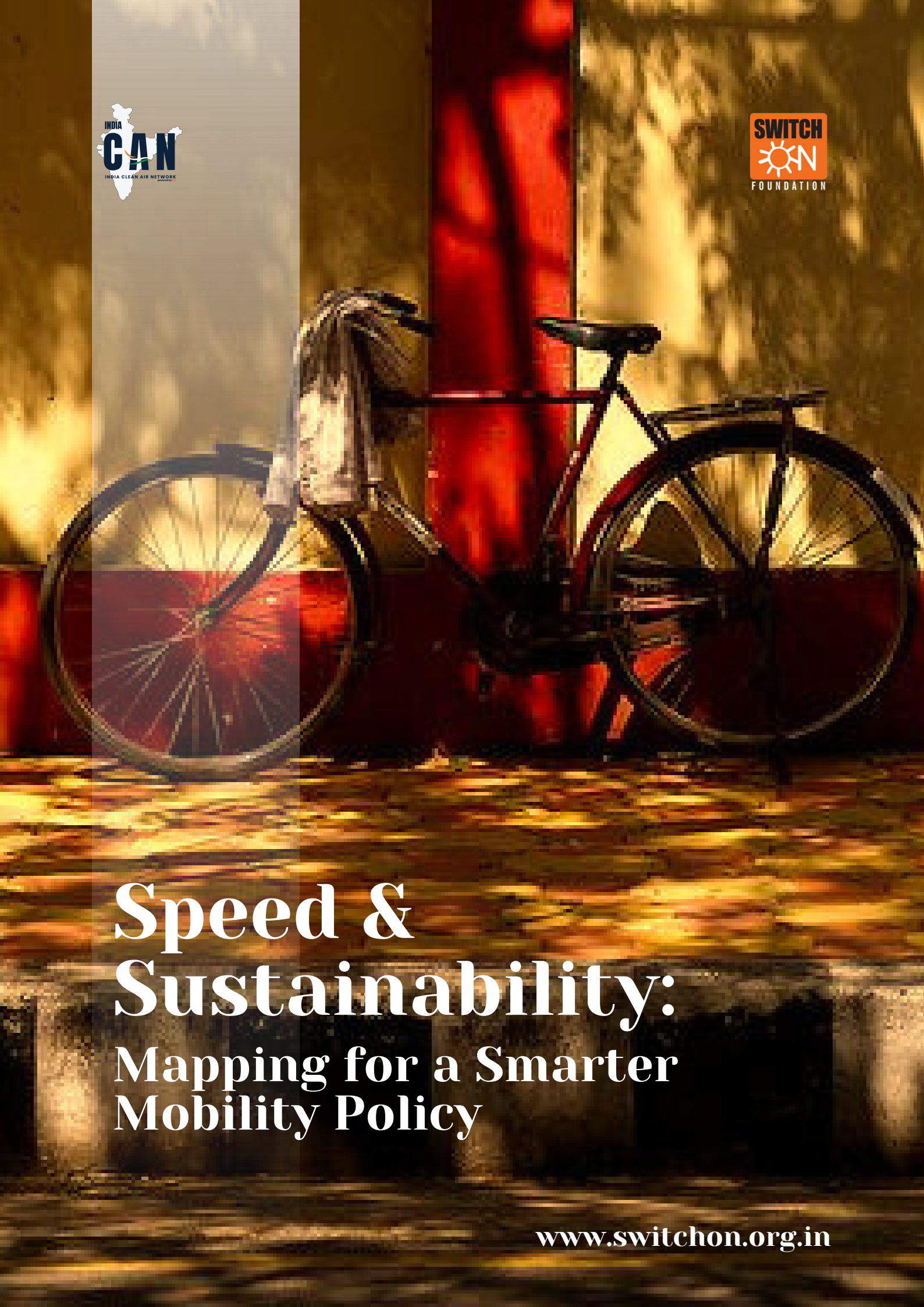

Speed & Sustainability:

Mapping for a Smarter Mobility Policy

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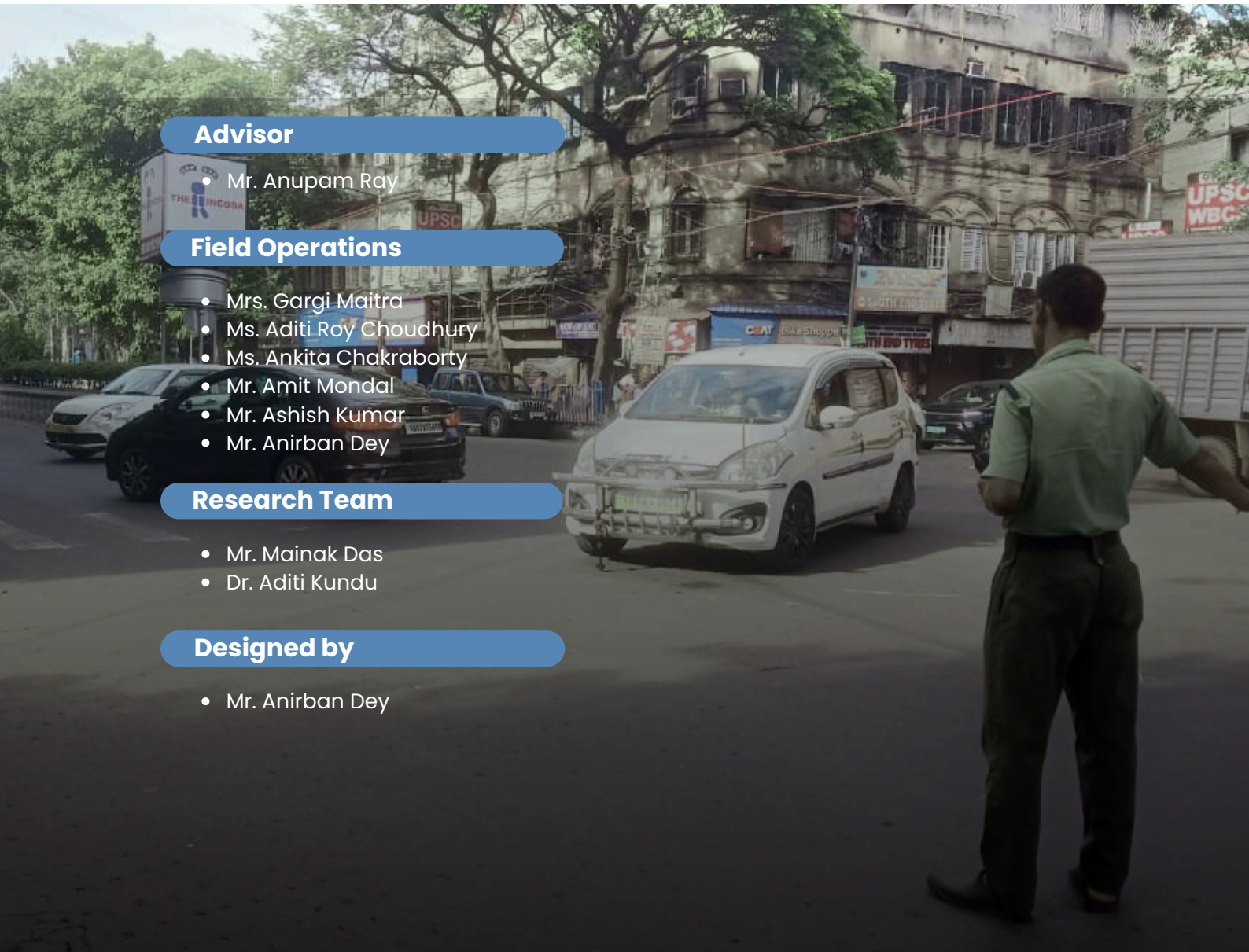
Founded in 2008, the Environment Conservation Society (ECS), also known as SwitchON Foundation, is a nonprofit organisation that fosters equitable and sustainable development in India. We aim to build a sustainable and equitable India, focusing on Clean Energy, Clean Air, **Sustainable Mobility**, Climate-smart Agriculture, Conservation and Integrated Management of Natural Resources, Just Transition, Skilling, and **Sustainable Cities**. Our mission is to promote sustainable livelihoods and address environmental challenges through innovative business models and technologies, aiming to create opportunities for 10 million people at the bottom of the pyramid by 2030.

The research report, ***'Speed & Sustainability: Mapping for a Smarter Mobility Policy'***, aims to promote sustainable mobility in Kolkata, the "City of Joy." This report on the speed mapping of Kolkata examines the vehicular speed trajectory in the city. By shedding light on the matters of sustainable mobility, the study underscores ECS's ongoing efforts to improve sustainable mobility management in urban areas, aligning with the broader objectives of Sustainable Development Goal (SDG) 11: Sustainable Cities and Communities.



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EXECUTIVE SUMMARY

Kolkata, one of India's most populous and historically significant cities, faces a pressing urban mobility crisis. **The city ranked as the second most congested city globally (TomTom Traffic Index, 2024), and the commuters here seem to spend over 110 hours annually in rush-hour traffic.** Against this backdrop, the SwitchON Foundation has undertaken a comprehensive speed mapping study focused on key corridors in Kolkata. The study covers four primary modes of transport—auto-rickshaws, buses, taxis, and motorcycles. The study encompasses temporal trends across 2020, 2022, 2023, and 2025 for the city and has also captured the spatial variations, with the neighbouring Tier-II cities—Durgapur and Dhanbad.

The findings of the report showcased that while some arterial corridors like VIP Road and Diamond Harbour Road show notable speed improvements, **inner-city stretches such as Vivekananda Road, Deshpran Sasmal Road, and Dum Dum Road remain congested like the previous years.** Public transport, particularly buses, continues to perform poorly, clocking average speeds of 10–15 km/h across most central corridors, due to mixed traffic conditions and a lack of prioritisation infrastructure. In contrast, motorcycles and auto-rickshaws consistently outperform other modes, although their dominance raises concerns about road safety and regulatory oversight. **The average cycling speed along the Ultadanga to Dum Dum Park stretch via VIP Road has reached 21 km/h, while in contrast, areas like Esplanade and Tollygunge Phari have seen a drop to 10 km/h.**

In the selected stretches of Kolkata, **the study records a modest upward trend in overall vehicular speed from 2020 to 2025,** especially on peripheral and high-capacity corridors. Yet, these gains are highly corridor-specific and not reflective of a systemic shift in mobility efficiency. Cross-city comparisons reveal that Tier-II cities like **Durgapur and Dhanbad sometimes match or outperform Kolkata on several stretches,** despite limited infrastructure, due to limited vehicular presence on the roads compared to Kolkata.

Key recommendations emerging from this study call for urgent public transport prioritisation through **dedicated bus lanes,** adaptive signal technologies, and **enforcement of smart parking norms. Pedestrian infrastructure** must also be safeguarded through regular audits, **vending zone regulation**, and better integration with public transport nodes. Importantly, **behavioural change** across all stakeholder groups—drivers, pedestrians, and civic authorities—is essential for holistic improvement. A separate **Cycle-Only Street Network** has been ideated and proposed at the end of the report.

This report offers a data-backed roadmap to reimagine Kolkata's mobility. By leveraging targeted interventions, stakeholder participation, and evidence-based planning, the city can transition from its current state of congestion to a future of faster, safer, and more sustainable transport systems.

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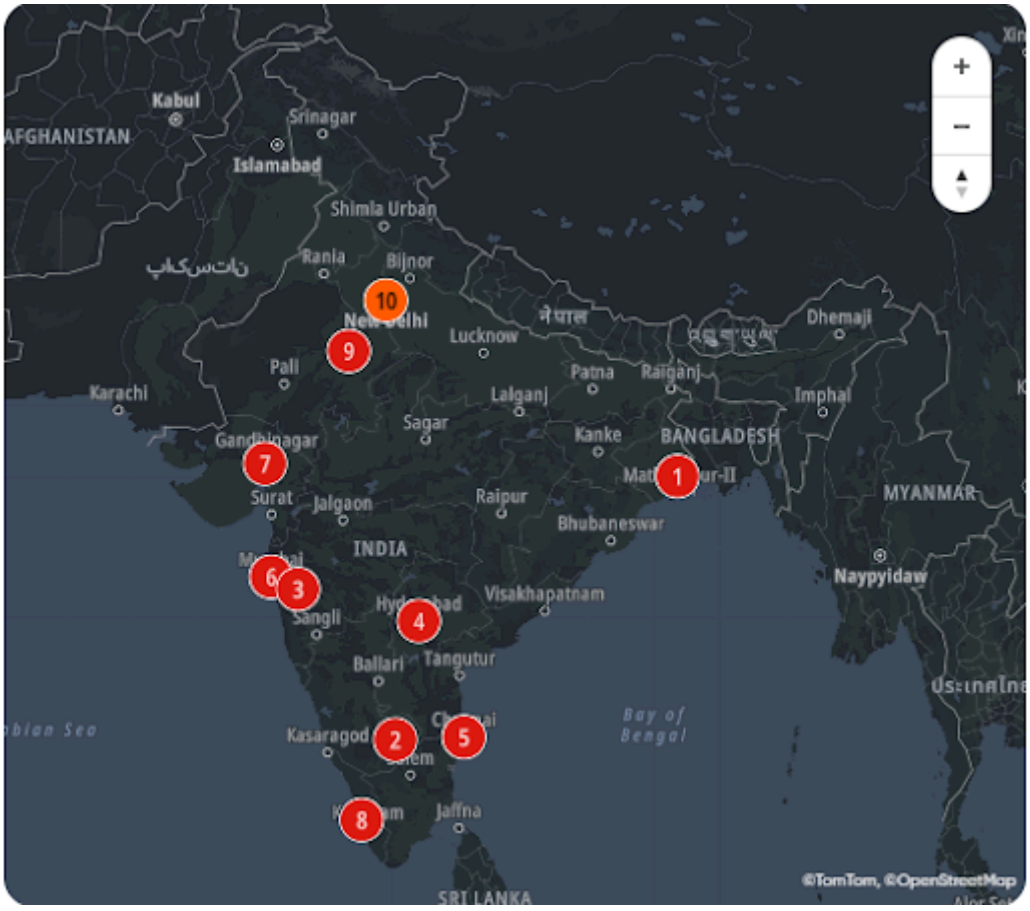
1. URBAN CONGESTION IN CONTEXT: WHY KOLKATA'S SPEED MATTERS

Kolkata stands as a dynamic urban hub in eastern India, steeped in history yet brimming with modern aspirations. As cities across the country drive economic growth and innovation, mobility emerges as a critical enabler of urban efficiency and sustainability. In this context, the issue of vehicular speed in Kolkata is more than a transportation concern—it is a reflection of how well the city moves, breathes, and progresses.



Source : ***India Traffic Report, TomTom Traffic Index, 2024***

According to the *TomTom Traffic Index* (2024), Kolkata ranks as the **second most congested city globally**, with commuters spending **over 110 hours annually** in rush-hour traffic. The average travel time per 10 km stands at **34 minutes and 33 seconds**, and the congestion level is pegged at **32%**. These figures underscore the urgent need to reassess and reimagine how the city manages its transport load, particularly as urban growth extends into peripheral zones and personal vehicle usage continues to rise sharply.

The ultimate goal is to support evidence-based urban planning and foster a mobility ecosystem that is faster, smarter, and more sustainable, positioning Kolkata as a model for next-generation urban transport solutions.

According to the *TomTom Traffic Index* (2024), Kolkata ranks as the **2nd most congested city globally**, with commuters spending **over 110 hours annually** in rush-hour traffic. The average travel time per 10 km stands at **34 minutes and 33 seconds**, and the congestion level is pegged at **32%**. These figures underscore the urgent need to reassess and reimagine how the city manages its transport load, particularly as urban growth extends into peripheral zones and personal vehicle usage continues to rise sharply.

The ultimate goal is to support evidence-based urban planning and foster a mobility ecosystem that is faster, smarter, and more sustainable, positioning Kolkata as a model for next-generation urban transport solutions.

In this regard, the **objectives** of the report have been set as follows.

a. To map and analyse speed trends on congested road stretches in Kolkata.

b. To assess temporal change in mean vehicular speed.

c. To benchmark Kolkata's road efficiency against tier-II urban corridors.

2. SPEED MAPPING FRAMEWORK

2.1. Study Design

The study focused on identifying high-density, congestion-prone road segments in three cities —**Kolkata, Durgapur, and Dhanbad**. Data collection was conducted during peak traffic hours, specifically **9:00 AM to 11:00 AM** and **5:00 PM to 7:00 PM**, to capture real-world mobility conditions.

The assessment included four key transport modes: **auto-rickshaws, buses, taxis, and motorcycles**, selected based on their operational presence and availability in each city. This multi-modal approach allowed for a comprehensive understanding of urban speed dynamics across varied vehicle types and urban typologies.

2.2. Data Collection

The data collection process for this speed mapping study began with the selection of congested road corridors in Kolkata, previously studied by SwitchON Foundation, Additionally, some new stretches of roads were included in this year's study for further insights. The stretches of road studied, i.e. from Point A to Point B, remained 2 to 3 km average distance. Data collection was done between **23rd April to 6th May 2025.** On-ground vehicular speed data was recorded through **GPS and time tracking** across multiple vehicle types—auto-rickshaws, buses, taxis, and motorcycles—during designated peak hours.

To ensure robustness, the 2025 field data was **tallied against previous year datasets from SwitchON Foundation**, enabling a consistent temporal analysis. For a broader time-series perspective, speed data from 2020 to 2025 were reviewed and integrated.

In addition to primary field data, an **app-based secondary data source (Google Maps)** was leveraged for the same road stretches. This hybrid approach allowed for **cross-verification and standardisation** of speed observations, enriching the quality and reliability of the findings.

2.3. Study Area

SwitchON Foundation has undertaken speed mapping studies across various city locations over the past years. Based on insights from previous data, the studied stretches were revised in subsequent years. The city-wise details of the study areas with the studied years are provided in the table below.

City	Name of the road	Point A	Point B	Studied Years
Kolkata	Beleghata Main Road	Sealdah Big Bazar	CIT More	2025, 2023, 2022, 2020
	Chowringhee Road - Asutosh Mukherjee	Birla Planetarium	Chakraberia More	2025
	Deshpran Sasmal and Netaji Subhas Road	Tollygunge Phari	Ranikuthi Bus Stop	2025
	Diamond Harbour Road	Thakurpukur Bazar	Behala Chowrasta	2025, 2023, 2022, 2020
	Dum Dum Road	Chiriamore	Motijheel	2025, 2023, 2022, 2020
	Esplanade	Tipu Sultan Mosque	Lindsey Street Junction	2025
	Garia Main Road	Baishnabghata	Kamalgazi Bypass crossing	2022, 2020
	N.S. Road	Tollygunge Metro	Bansdroni Maharishi	2022, 2020
	New Town	New Town Bus Stand	Tata Memorial Hospital more	2022, 2020
	Prince Anwar Shah Road	Tollygunge Phari	Jadavpur P.S	2025, 2023, 2022, 2020
	Rashbehari Avenue	Rashbehari More	Bijon Setu	2025, 2023, 2022, 2020
	Tollygunge Circular Road	Tollygunge Phari	Pathakpara	2025, 2023, 2022, 2020
	VIP Road	Ultadanga	Dum Dum Park (VIP)	2025, 2023, 2022, 2020
	Vivekananda Road	Girish Park	Kankurgachi	2025, 2023, 2022, 2020
Dhanbad	Dhanbad - Katras Road	City Centre	Bank more	2025
	Barwadda Road	Memko more	City Centre	2025
	Govindpur road	City Centre	Police Line Hirapur	2025
Durgapur	Ananda Gopal Mukherjee Sarani	Prantika	Bhiringi More	2025
	Maulana Azad Sarani-Kabiguru Sarani-	City Centre	Bhagat Singh More	2025
	Yuri Gagarin Path	Muchipara	Bank Colony	2025

2.4. Data Analysis Framework

For each selected road stretch, mean vehicular speeds **(in km/h)** were calculated based on field data, segmented by available vehicle categories—**auto-rickshaws, e-rickshaws (totos)**, **buses, taxis, and motorcycles.** Where applicable, **Google Maps-based travel time and distance data** were incorporated to validate and enrich the mean speed estimations. However, it is noted that **Google Maps data was largely unavailable for modes such as e-rickshaws (totos) and autos,** particularly in less digitised corridors.

Mean Speed= ((Actual Distance/Actual Time)+(Online Predicted Distance/Online Predicted Time))/2

Besides the recent situation study, the analysis was conducted at two levels :

- **Temporal Analysis :** Comparative speed trends were assessed across the years **2020, 2022, 2023, and 2025,** using consistent road stretches and vehicle types to identify patterns and deviations in urban traffic flow over time.

- **Spatial Analysis :** Cross-city comparison of the congested road stretches **mean speed data from 2025** was carried out across the three cities—**Kolkata, Durgapur, and Dhanbad**—to understand Kolkata's situation in comparison with neighbouring Tier-II cities.

This dual-layered analysis provides both historical perspective and regional benchmarking, enabling evidence-based insights for mobility interventions.

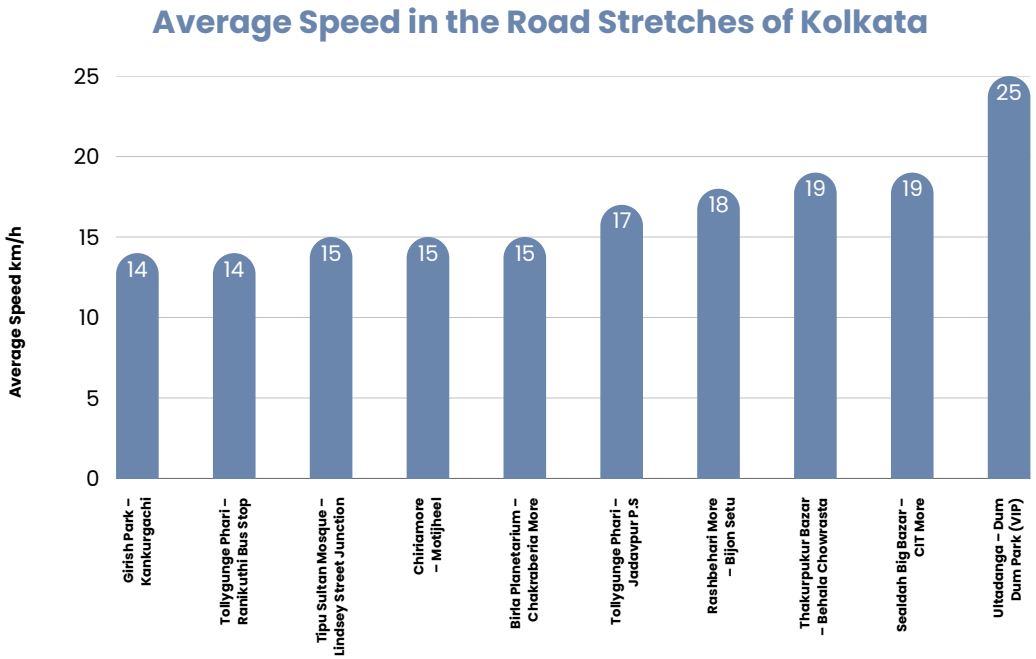
3. CORRIDOR-LEVEL INSIGHTS: TRENDS, GAPS & MODE PERFORMANCE

3.1. Mode-wise Speed Patterns in Kolkata's Urban Corridors (2025)

The 2025 speed study across major congested road stretches of Kolkata reveals a **moderate to low average mean speed,** reflecting traffic delays, especially during peak hours.

Key Observations:

- The **average vehicular speeds across the studied stretches** range from **14 km/h to 25 km/h,** with the highest average recorded on **VIP Road (25 km/h)** and the lowest on **Deshpran Sasmal & Netaji Subhas Road (14 km/h) and Vivekananda Road (14 km/h).**



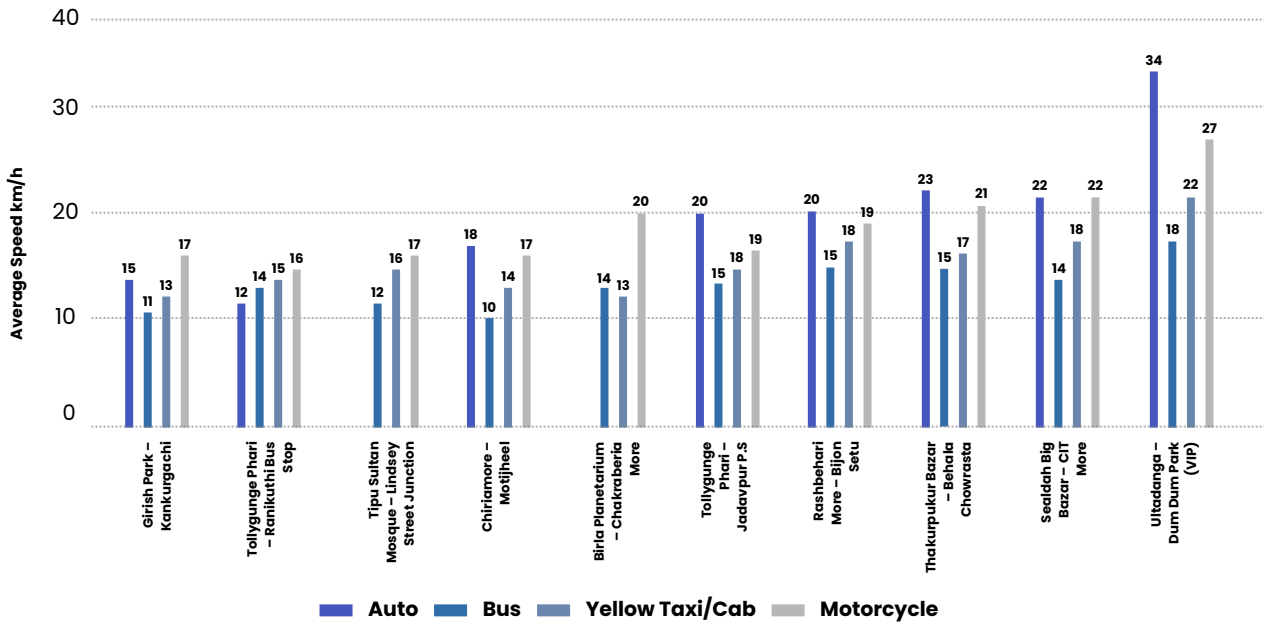
- **Public transport modes ,** particularly buses, consistently record lower mean speeds, indicating friction due to frequent stoppages, lack of dedicated lanes, and signal congestion :
    - On **Dum Dum Road,** bus speeds drop to **10 km/h**, highlighting acute congestion in narrow, mixed-use corridors.
    - In **Esplanade,** a central commercial zone, buses move at just **12 km/h,** due to prolonged waiting at signals and a lack of bus lanes in Central Business District (CBD) areas.
    - Even on stretches with relatively better road width like **Prince Anwar Shah Road** and **Rashbehari Avenue,** buses record only **14 km/h** and **15 km/h,** respectively.

- In contrast, **motorcycles consistently outperform all other modes,** with speeds ranging between **16 km/h to 27 km/h.** On **VIP Road,** motorcycles hit a peak of **27 km/h,** showcasing the ease of two-wheeler navigation in mixed-traffic environments.

- **Auto-rickshaw speeds** are relatively efficient on stretches like **Beleghata Main Road (22 km/h)** and **Diamond Harbour Road (22 km/h),** yet absent in some central zones due to restricted access or unavailability of structured data.

- Corridors of **Bhowanipore** and **Esplanade** area reflect high congestion and limited traffic fluidity, with overall average speeds around **15 km/h** or below.

Vehicle Specific Average Speed in the Road Stretches of Kolkata



Cycling in the city of Kolkata

Cycling speed in Kolkata demonstrates significant variability due to its dependence on individual rider characteristics, including physical capacity, intent of travel, and personal pace. Since the cyclist is the sole driver of motion, rider-specific factors directly influence speed. To account for this variation, a multi-rider primary assessment was conducted to determine a representative average speed for cycling across selected stretches in the city. Secondary data sources, such as Google Maps, were not applicable for this mode due to data unavailability.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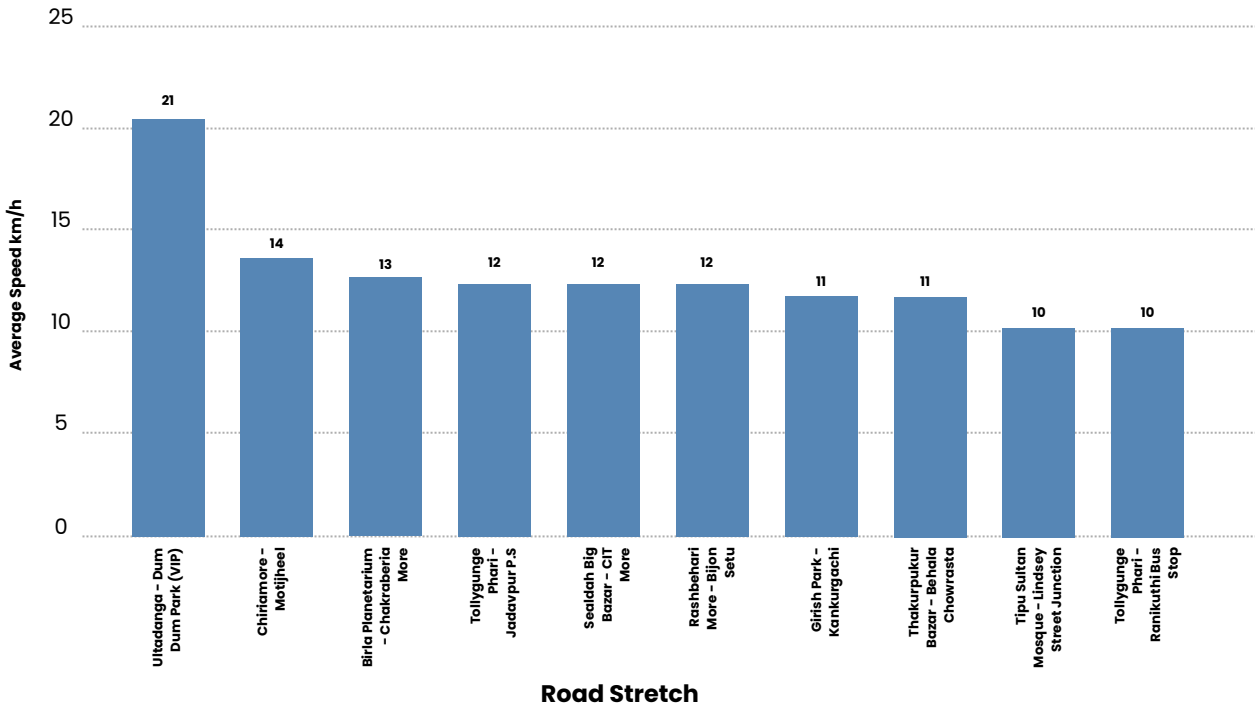
Average Speed of Bicycle in the Road Stretches of Kolkata

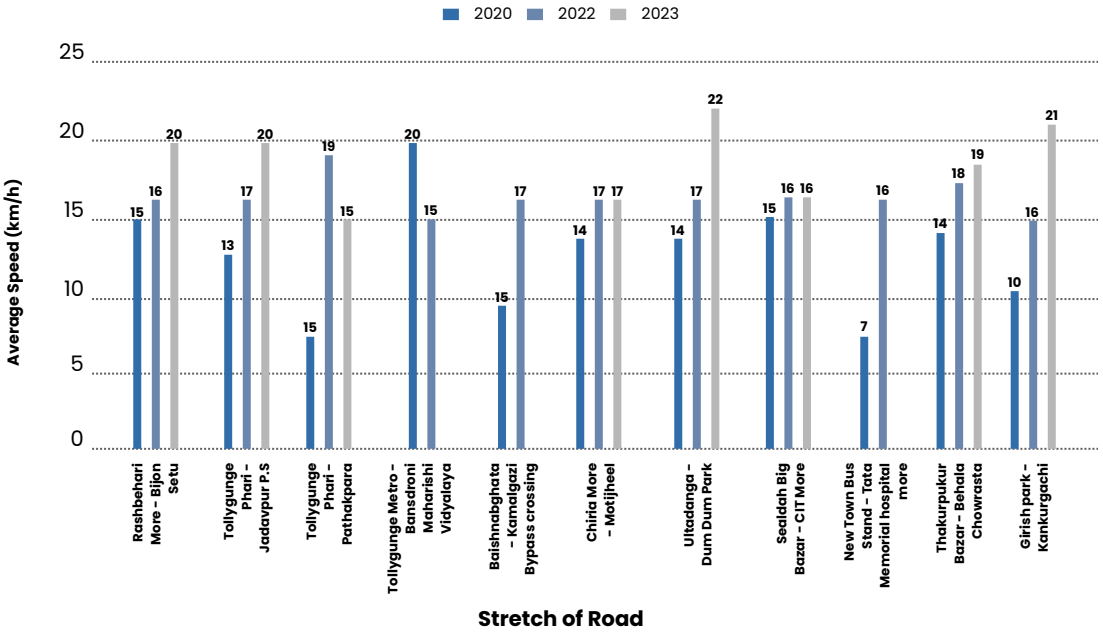


The cycling speed assessment across ten selected urban stretches in Kolkata reveals considerable variability, with average speeds ranging from 10 km/h to 21 km/h. This dispersion is indicative of differential traffic conditions, infrastructure quality, signal density, and land use patterns across the city.

- **Highest Speed :** The Ultadanga – Dum Dum Park (VIP Road) corridor recorded the highest average speed of 21 km/h. This stretch is characterised by a wider road and a separate service road for movement.

- **Lower Speeds :** Tollygunge Phari - Ranikuthi Bus Stop and Tipu Sultan Mosque to Lindsey Street Junction recorded the lowest average cycling speed at 10 km/h, suggesting high congestion, infrastructural constraints and long waiting times at signals. Other slower stretches include Thakurpukur Bazar – Behala Chowrasta (11 km/h) and Girish Park - Kankurgachi (11 km/h), which are typically dense mixed-use areas with signal interruptions and encroachments.

Previous Record of Bicycle Average Speed



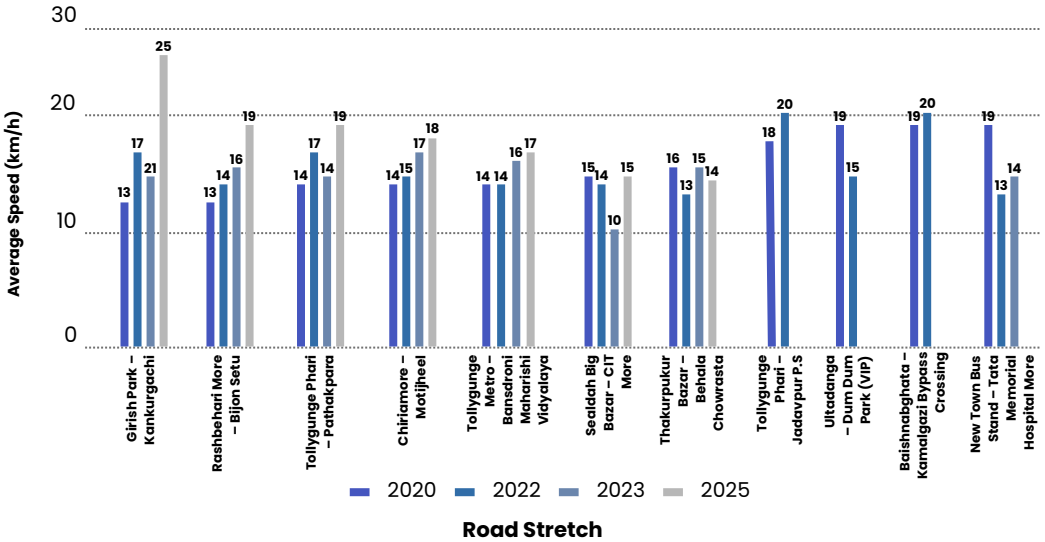
Based on previous records, most selected stretches in **Kolkata showed an upward trend in average cycle speed from 2020 to 2023.** However, despite the VIP Road stretch recording 21 km/h in 2025, the majority of stretches have experienced a decline in average cycle speed this year.

3.2 Temporal Analysis: Kolkata Speed Trends

The multi-year speed data (2020 to 2025) across key Kolkata corridors reveals a **notable upward trend in average vehicular speed** in locations, particularly in **2025,** marking a possible improvement in traffic flow or reduced on-road friction during data collection windows.

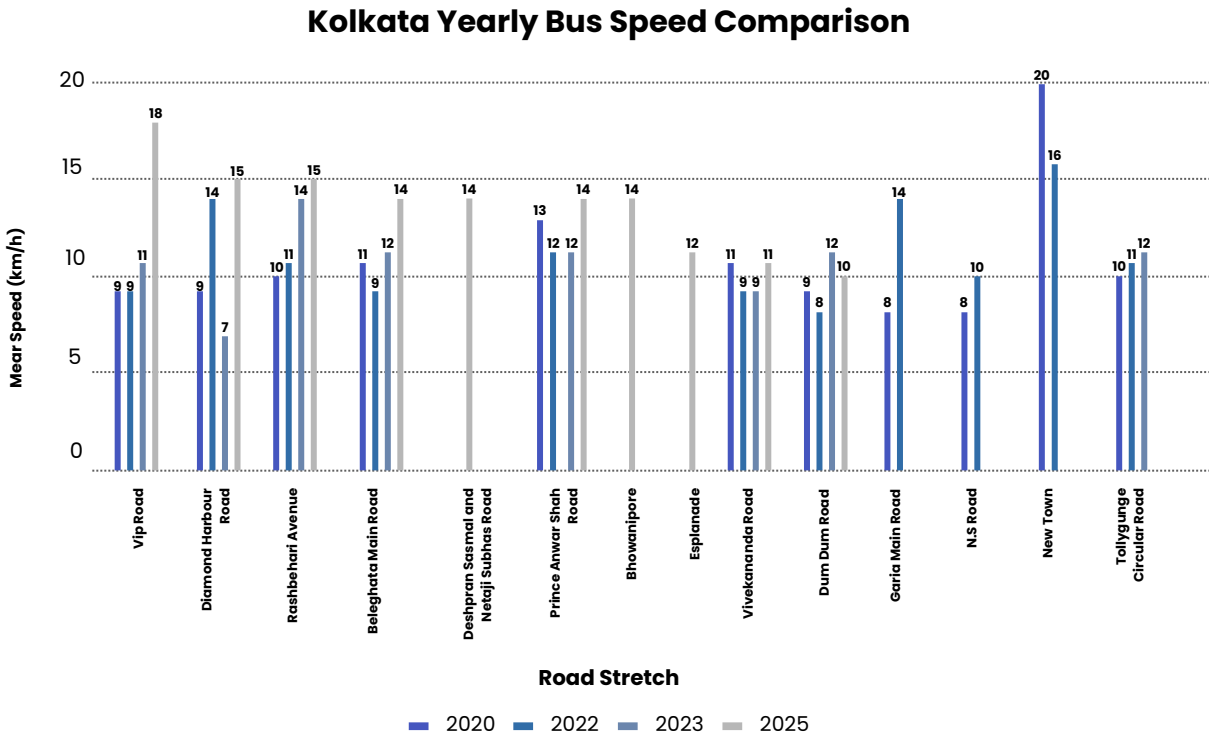
Of the 13 corridors with multi-year data, **10 show a clear increase in average speeds from 2020,** indicating marginal improvements in surface-level mobility. This trend, however, is **not uniform across vehicle types,** with buses still recording the **lowest average speeds,** highlighting the persistent friction for public transport in mixed-traffic environments.

Temporal Average Speed Trend in Congested Road Stretches of Kolkata



Key Observations:

- **Significant Improvement in Overall Average Speeds**
    - **Beleghata Main Road** improved from **15 km/h (2020)** to **19 km/h (2025)**—a 27% increase in average speed, primarily driven by **auto (14 → 22 km/h)** performance.
    - **Diamond Harbour Road** increased from **16 km/h (2020)** to **19 km/h (2025),** with autos nearly tripling in speed from **9 km/h (2020)** to **23 km/h (2025)**—suggesting possible improvements in road surface or signal coordination.
    - **VIP Road,** a key arterial route, showed the **highest average speed jump,** from **19 km/h (2020)** to **25 km/h (2025).** All vehicle categories saw increases, especially taxis **(10 → 22 km/h)** and **motorcycles (29 → 27 km/h),** though motorcycle speed slightly dipped from its 2022 peak.
- **Modest Gains in Public Transport**

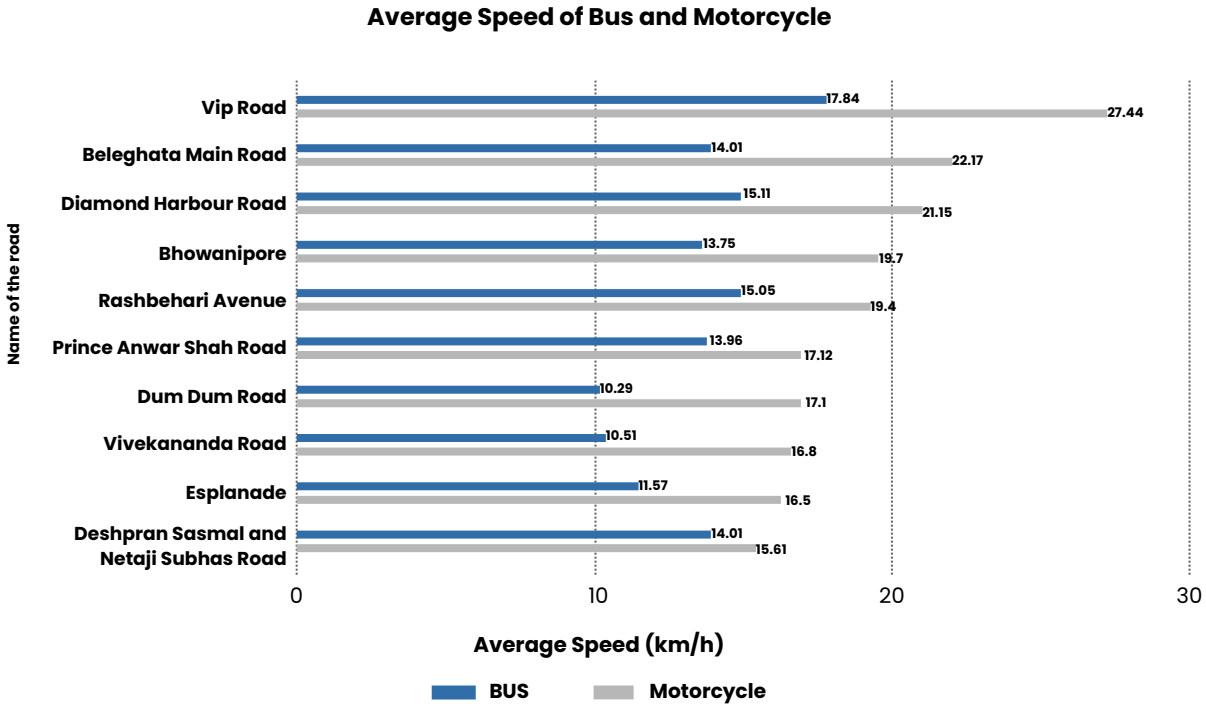


- **Bus speeds, while still lower than other modes, show moderate recovery in 2025:**
    - On **Prince Anwar Shah Road**, bus speed rose from **13 km/h (2020) to 14 km/h (2025).**
    - On **Rashbehari Avenue,** it improved from **10 km/h (2020) to 15 km/h (2025)**—a 50% increase over five years.
    - However, **Dum Dum Road** shows a regression from **16 km/h (2020) to just 10 km/h (2025)** for buses, signalling growing bottlenecks in that corridor.

- **Auto-rickshaw** speeds have shown consistent improvement between 2020 and 2025, with a significant surge in arterial and peri-urban stretches.
    - In 2020, the highest speed was recorded on **Prince Anwar Shah Road at 26 km/h**, while **Diamond Harbour Road** and **Vivekananda Road** saw some of the lowest speeds, both at around **9 km/h.**
    - By 2023, autos picked up pace, particularly on **VIP Road (20 km/h) and Diamond Harbour Road (20 km/h),** reflecting possible easing of congestion or enforcement on these corridors.
    - In 2025, **VIP Road again emerged as the best-performing stretch,** with a remarkable **34 km/h average speed for autos.** In contrast, **Deshpran Sasmal Road** reported the lowest at **13 km/h,** reflecting constrained capacity and localised congestion issues.

- **Moderate Speed of Taxi/App cab over the Years**
    - In 2020 and 2022, **Garia Main Road** recorded the highest speeds for taxis at **26 km/h**, suggesting smoother flow in that stretch. Conversely, **Dum Dum Road** consistently pulled down performance with speeds as low as **7 km/h to 9 km/h**, indicating severe congestion and frequent halts.
    - By 2023, **Rashbehari Avenue** showed improved taxi speeds (24 km/h), likely due to better signal coordination or less mixed traffic during data collection.
    - In 2025, **VIP Road topped again at 22 km/h,** reinforcing its role as a high-speed corridor. Meanwhile, **Vivekananda Road** and **Bhowanipore** remained at the bottom of the spectrum with just **13 km/h,** showing minimal progress over time.

- **Motorcycles : Apparently, The Fastest Mode in Kolkata**
    - Motorcycles have consistently been the fastest mode across all five years due to their flexibility and smaller turning radius, allowing them to manoeuvre through congestion.
    - In 2020, the highest recorded speed was **29 km/h on VIP Road,** and this increased to **30 km/h in 2022,** peaking that year.
    - While **VIP Road remained the top performer through 2023 and 2025,** with motorcycle speeds consistently above **26 km/h,** some stretches like **Deshpran Sasmal Road** and **Tollygunge Circular Road** remained sluggish, holding speeds between **14–16 km/h** due to poor road geometry and frequent intersections.
    - Overall, motorcycles continue to dominate in terms of speed across all corridors, but their advantages are clearly limited in highly congested or signal-dense inner-city zones.


Average Speed of Bus and Motorcycle
Vip Road
Beleghata Main Road
Diamond Harbour Road
Bhowanipore
Rashbehari Avenue
Prince Anwar Shah Road
Dum Dum Road
Vivekananda Road
Esplanade
Deshpran Sasmal and Netaji Subhas Road
17.84
27.44
14.01
22.17
15.11
21.15
13.75
19.7
15.05
19.4
13.96
17.12
10.29
17.1
10.51
16.8
11.57
16.5
14.01
15.61
Name of the road
0
10
20
30
Average Speed (km/h)
BUS
Motorcycle


Pilot

Consistent Limited Speed Record at Some Stretches

- **Vivekananda Road,** despite marginal gains, remains chronically slow : average speeds hovered between **13–15 km/h** over five years. Bus speed only rose from **9 km/h (2020)** to **11 km/h (2025).**

- **Deshpran Sasmal Road** shows limited change, with a **14 km/h average speed** in 2025, reflective of persistent congestion and narrow road width.

3.3 Spatial Comparison with Tier-II Cities

Kolkata, as a Tier-I metro city, continues to reflect the expected urban mobility stress seen in large metropolitan zones, with dense traffic volumes, frequent stoppages, and infrastructural saturation. However, the neighbouring Durgapur and Dhanbad, both Tier-II cities, show more dynamic movement patterns with relatively less congested arterial roads, even though infrastructural quality varies.

- **Similarities in the performance of Auto-Rickshaws**

In Kolkata, **VIP Road (34.2 km/h)** and **Diamond Harbour Road (22.7 km/h)** emerged as the top-performing stretches for autos. Meanwhile, **Vivekananda Road** and **Deshpran Sasmal Road** recorded the lowest speeds at **14.6 km/h** and **12.6 km/h,** respectively.

In Tier-II cities, **Dhanbad's Barwadda Road (26.9 km/h) and Ananda Gopal Mukherjee Sarani in Durgapur (20.4 km/h)** performed reasonably well, suggesting smoother flow compared to several Kolkata corridors. However, inner-core roads in these cities (e.g., **Govindpur Road at 10.4 km/h**) saw speeds drop to levels typical of congested metro zones, reflecting localised friction.

- **Buses : Sometimes High, Sometimes Low**

Bus movement in Kolkata remains sluggish, with average speeds ranging between **10.29 km/h (Dum Dum Road)** and **15.11 km/h (Diamond Harbour Road).** This highlights the chronic issue of buses being trapped in mixed traffic without dedicated lanes or signal priority.

In comparison, **Dhanbad's Bhagat Singh More stretch** saw a higher average of **15.9 km/h**, while Durgapur's **Yuri Gagarin Path** clocked just **9.2 km/h**, showcasing stark inter-stretch variation even within Tier-II zones. Despite infrastructure constraints, Tier-II bus movement performs comparably or better than Kolkata on some routes, reflecting lower traffic density.

- **Motorcycles : The Fastest Mode of Transport**

Motorcycles continue to be the most agile and consistently fastest mode across all cities. In Kolkata, **VIP Road (27.44 km/h)** and **Diamond Harbour Road (21.15 km/h)** led the charts. However, **Deshpran Sasmal Road (15.61 km/h)** again reflected sub-optimal traffic flow.

In Tier-II zones, **Barwadda Road in Dhanbad (29.25 km/h)** outpaced all Kolkata corridors, showcasing the edge Tier-II roads still hold in less densely packed zones. Similarly, Durgapur's **Govindpur Road (25.51 km/h)** and **Ananda Gopal Mukherjee Sarani (22.54 km/h)** reported highly efficient motorcycle movement.

- **E-Rickshaws (Totos): An Integral Part of Tier-II Cities**

This mode, studied only in Tier-II cities, had relatively modest speeds, with **Govindpur Road (11 km/h)** at the lower end and **Ananda Gopal Mukherjee Sarani (19.3 km/h)** at the upper. Their absence in most Tier-I formal data systems suggests a need for better tracking and integration of such modes in urban planning.

4. SYSTEMIC PATTERNS: MOBILITY INEFFICIENCIES & BEHAVIOURAL GAPS

4.1 Public Transport Speed is a Critical Bottleneck

The study confirms that **bus speeds remain alarmingly low,** averaging **10–15 km/h** across most inner-city stretches such as **Dum Dum Road, Esplanade, and Deshpran Sasmal Road**. Despite their high capacity and environmental efficiency, buses are disproportionately impacted by congestion, operating within mixed traffic without priority. This is a strategic gap and presents a **clear policy opportunity** to prioritise public transport through **dedicated lanes, signal priority, and corridor-level interventions.**

4.2 Speed Gains Are Corridor-Specific, Not Citywide

Contrary to expectations, speed improvements have not been uniform. While arterial corridors like **VIP Road, Prince Anwar Shah Road, and Diamond Harbour Road** demonstrate significant speed efficiency, particularly for autos and motorcycles, core urban stretches such as **Vivekananda Road, Bhowanipore, and Dum Dum Road** remain chronically congested. This validates the case for **corridor-specific mobility strategies** over broad-brush reforms.

4.3 Agile Modes Dominate Performance, but Raise Safety Concerns

Motorcycles and auto-rickshaws consistently outperform all other modes in terms of average speed. This trend is evident on roads like **VIP Road (motorcycle: 27.4 km/h, auto: 34.2 km/h)** and **Diamond Harbour Road**, underscoring their agility in congested conditions. However, over-dependence on such modes—especially in unregulated environments—raises concerns about **road safety, emissions, and modal equity**.

4.4 Temporal Trends Show Marginal Progress

Between **2020 and 2025, a gradual but fragmented improvement** in vehicular speeds is observed. Notable gains have occurred on peripheral roads, yet inner-city stretches have either stagnated or declined. The trend highlights a lack of integrated congestion management and reinforces the **need for systemic, city-level planning** backed by continuous data monitoring.

4.5 VIP Road Emerges as a Performance Benchmark

With autos averaging **34.2 km/h,** taxis at **21.9 km/h,** and motorcycles at **27.4 km/h, VIP Road sets the benchmark** for mobility efficiency in Kolkata. Factors like wider carriageways, controlled access, and signal coordination contribute to this outlier performance. VIP Road can be seen as a **reference model for infrastructure-led decongestion** in similar corridors and in neighbouring cities.

4.6 Inner-City Stretches Are Locked in Structural Inefficiency

Stretches like **Esplanade, Vivekananda Road, and Bhowanipore** remain persistently slow despite network-wide efforts. Their mixed-use intensity and high pedestrian activity necessitate **context-specific design solutions,** including signal redesign, modal segregation, and pedestrian prioritisation.

4.7 Congested Road Stretches in Kolkata Lag Behind Tier-II Cities

When benchmarked against some congested roads of **Dhanbad and Durgapur,** Kolkata lags in average vehicular speeds, especially for two- and three-wheelers. Roads like **Govindpur Road and Ananda Gopal Mukherjee Sarani** in Durgapur outperform Kolkata's busiest corridors.

5. TURNING THE CURVE: STRATEGIC INTERVENTIONS FOR FASTER COMMUTES

The speed of vehicles on Kolkata's roads is not solely determined by the number of cars, the presence of signals, or congestion levels. It is fundamentally shaped by how the city behaves—by its civic sense, compliance with traffic laws, mutual respect among road users, and adherence to the rules that govern movement. The pedestrian who crosses responsibly, the auto driver who doesn't block intersections, the commuter who refrains from illegal parking—each plays a vital role.

At the same time, the urban form matters- road quality, road geometry, width, lane discipline, signage, junction management, and enforcement mechanisms- all influence how efficiently vehicles move across the city. The synergy between **infrastructure, enforcement, and public behaviour** defines the actual flow of traffic, not the number of vehicles alone.

With that understanding, here are structured and actionable recommendations for different stakeholder groups:

For Vehicle Drivers

- **Drive with Discipline and Responsibility**

Adhering to lane discipline, respecting speed limits, and yielding at pedestrian crossings can significantly improve corridor-level speed efficiency without compromising safety.

- **Avoid Illegal Parking and Idle Waiting**

Do not obstruct motorable roads by waiting or parking on busy stretches. Follow time-limited on-street parking rules and explore off-street options to reduce road occupancy.

- **Use Apps for Navigation and Parking**

Leverage real-time data tools to avoid congestion hotspots and find legal parking options. Smart usage contributes to smoother traffic flow for all.

- **Respect Public Transport and Shared Mobility**

Do not block bus stops or designated auto stands. Allow smooth entry and exit for shared vehicles to enhance system-wide efficiency.

For Pedestrians and Citizens

- **Use Footpaths and Pedestrian Crossings**

Avoid walking on roads unless necessary. Always use sidewalks, zebra crossings, and skywalks where available. Respect railings and safety infrastructure.

- **Report Infrastructure Issues**

Be proactive in reporting damaged railings, blocked footpaths, and encroachments to relevant authorities. Civic participation drives faster improvements.

- **Support Better Urban Mobility**

Engage in public consultations and local forums to voice support for better pedestrian, parking, and transit infrastructure in your community.

For the Government and Urban Agencies

a. Traffic & Speed Management

- **Prioritise Public Transport Through Infrastructure**

Implementation of dedicated bus lanes and signal pre-emption can improve average bus speeds. Mode mixing, especially in high-volume corridors, needs to be avoided.

- **Introduce Corridor-Specific Congestion Strategies**

Targeting low-performing stretches like Vivekananda Road and Deshpran Sasmal Road with localised design interventions and strict enforcement can boost the speed of these sections, contributing to the overall vehicular speed of Kolkata.

- **Adopt Smart Traffic Technologies**

Use of adaptive signal systems, real-time congestion monitoring, and automatic violation detection will help to streamline traffic movement dynamically.

b. Parking Management

- **Develop Off-Street Parking Infrastructure**

Encouraging the construction of underground and multi-level parking in marketplaces and high-density zones with incentives for private builder participation will help to declutter the roads.

- **Enforce Time-Based Parking Limits**

Introduction of graded parking charges to discourage long-term on-street parking and encourage quick vehicle turnover in commercial zones can help to make more space for the movement of vehicles.

- **Deploy Real-Time Parking Information Systems**

Digital platforms showing parking availability, duration of stay, and alerts for overuse can be built linking traffic police and municipal data for holistic monitoring.

- **Strict Action Against Illegal Parking**

Imposing heavy fines and using 24/7 CCTV monitoring in problem areas to identify illegal parking needs to be done, and these must be treated as a direct impediment to public mobility.

c. Pedestrian Infrastructure & Safety

- **Improve and Maintain Railings & Footpaths**

Regular audits can ensure that pedestrian facilities like footpaths and railings align with natural crossing behaviour. Modification of infrastructure is mandatory where pedestrian demand is high.

- **Regulate Street Vending and Footpath Encroachment**

Establishment of formal vending zones and removal of encroachments to ensure walkability is needed because clear, accessible footpaths are non-negotiable.

- **Integrate Metro Premises with Parking Facilities**

Adoption of the Delhi Metro model for providing parking facilities within metro stations can reduce surface congestion and improve last-mile access.

- **Promote Public Awareness & Education**

Conducting ongoing multimedia campaigns on parking rules, pedestrian rights, and traffic regulations can help lead to behaviour change among fellow citizens.

6. TOWARDS A HIGH-MOBILITY KOLKATA: CALL TO ACTION

Kolkata's vehicular speed landscape paints a complex picture of a city grappling with rapid motorisation, legacy infrastructure, and evolving mobility demands. The data reveals stark variations across corridors and vehicle types, where arterial roads like VIP Road and Diamond Harbour Road offer higher average speeds, core stretches such as Vivekananda Road and Deshpran Sasmal Road remain chronically congested. Notably, public transport, particularly buses, continues to operate at suboptimal speeds due to shared road space, weak enforcement, and inadequate prioritisation.

However, the problem is not merely about vehicles or infrastructure, it is deeply rooted in behavioural, regulatory, and institutional gaps. Speed is shaped by civic sense, traffic obedience, pedestrian discipline, and how well we manage the limited space available. Tier-II cities like Dhanbad and Durgapur provide valuable reference points, where some corridors outperform Kolkata despite having fewer resources, thanks to lower friction and better street discipline.

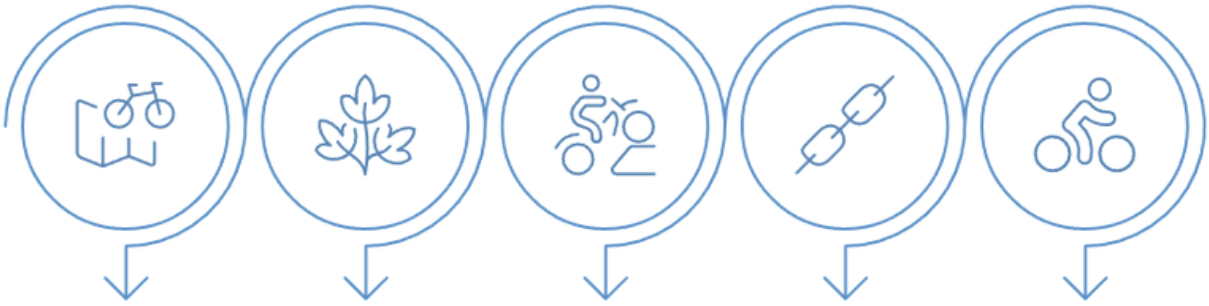
Yet, the challenges are not insurmountable. This report's recommendations—ranging from public transport prioritisation and intelligent parking solutions to pedestrian safety reforms and civic awareness—offer a pathway forward. With focused, corridor-level interventions and a strong governance framework, Kolkata can significantly enhance urban mobility without compromising inclusivity or sustainability.

The road ahead demands coordinated action, but the potential for transformation is high. If Kolkata embraces data-led planning, civic cooperation, and bold policy innovation, it can evolve into a city where mobility is efficient, streets are safe, and transport systems work for all. The momentum for change is here—what's needed now is the will to act.

Establishing a Parallel Cycle-Only Street Network - A Proposal

Given the resistance to cycle lanes on Kolkata's arterial roads, an alternative approach is critical. We propose a "Cycle-Only Street Network" built along existing passive, connecting or parallel road infrastructure. These parallel stretches (especially for the major arterial roads, which do not allow cycling) can be transformed into dedicated cycle and pedestrian corridors, designed to ensure safety, comfort, and continuity.

Key Features:



Dedicated signage and lane markings:
Clear cycle path demarcation.

Green cover and shaded pathways:
Improve thermal comfort.

Cycle crossings at junctions:
Integrated traffic signals akin to zebra crossings for pedestrians.

End-to-end connectivity:
Link critical urban nodes—markets, schools, transit hubs—via a seamless cycling corridor.

Cycle-only Lanes:
Restrict entry of all other vehicle types in these zones.

This **low-cost, high-impact intervention** would empower daily wage earners, office commuters, and eco-conscious citizens alike. It would also **bypass political resistance** around the use of prime roads while still delivering urban mobility benefits.

Cycling in Kolkata is not merely a lifestyle choice—it is a **livelihood enabler, climate solution,** and **health intervention**. Through our study and proposed interventions, it is evident that **citizen demand exists**. What's needed now is **political will, urban design innovation,** and **cross-sector collaboration**.

SwitchON Foundation calls upon civic authorities, urban planners, and policymakers to think about this **parallel cycle-path model** and unlock the true potential of Kolkata's streets.

Let's make cycling **safe, respected,** and **mainstream**.

7. Limitations of the Study

Every empirical study carries certain limitations that shape the scope and interpretation of its findings. These constraints arise due to methodological choices, data availability, and the practical realities of fieldwork. This study is no exception and is subject to the following key limitations:

- **Bus Type Selection :** Only private local buses were considered, as they are the most commonly used mode in the selected stretches. Other bus categories were excluded.
- **Cycling Speed Variability :** Cycle speeds can vary widely due to personal factors. The study relies on recorded data and does not account for real-time individual differences.
- **Simplified Time Tracking :** Only start and end times of trips were recorded. Personal delays or interruptions were not captured.
- **Exclusion of Road Conditions :** Factors like road quality, congestion levels, and traffic signal presence were not included in the analysis.

These limitations should be considered while interpreting the study outcomes, particularly in the context of urban transport planning and policy recommendations.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