Ease of Moving Index

India Report 2022

Chennai City Profile

February 2024

OMI FOUNDATION

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FOREWORD

De. J. Radhakrishnan, I.A.S.,
Additional Chief Secreatary to
Government/Commissioner
Greater Chennai Corporation

Dr. J. Radhakrishnan, I.A.S.,
Additional Chief Secretary to Government /
Commissioner
Greater Chennai Corporation

Dear Readers,

It is with great pleasure and enthusiasm that I present the Chennai City Profile, compiled by OMI Foundation. The Chennai City Profile is a comprehensive analysis of our city, derived from the rich data provided by the OMI Foundation's Ease of Moving Index India Report 2022. This City Profile is a testament to the collaborative efforts between the Greater Chennai Corporation and OMI Foundation in capturing, analysing and understanding the dynamics of mobility in our city

Chennai, the heart of Tamil Nadu, has consistently been at the forefront of embracing sustainable and resilient urban development. According to the Ease of Moving Index 2022, Chennai proudly boasts of having the second-highest adoption of public transport usage among mega cities in India. This achievement reflects our commitment to fostering a city where efficient and accessible transportation is a cornerstone of daily life.

One of the hallmarks of Chennai's forward-thinking approach is its early adoption of a non-motorised transport policy. Initiatives such as investing in enhanced footpaths and cycling infrastructure underscore our dedication to promoting active mobility. The fruits of these endeavors are evident in the success of projects like the pedestrian plaza, which has garnered widespread appreciation. As we witness the completion of the first phase of the metro and the rapid progress of the second phase, the city is undoubtedly on the cusp of a transformative era in transportation infrastructure.

In the pursuit of building a resilient city, Chennai is gearing up to formulate its third master plan. As we navigate this process, it becomes imperative to align our comprehensive mobility plan with the climate action plan. Sustainable mobility must emerge as a focal point in this convergence, ensuring that the city not only keeps pace with its burgeoning growth but does so in an environmentally responsible and inclusive manner.

The Greater Chennai Municipal Corporation plays a pivotal role in steering the mobility systems of our rapidly expanding metropolis. The Corporation's unwavering commitment and strategic initiatives contribute significantly to realising the shared vision for Chennai's progress. Managing the complexities of a bustling city demands a futuristic approach, and the Corporation's efforts resonate with our commitment to creating a city that is not only efficient but also sustainable.

I extend my unequivocal compliments and gratitude to the entire team at OMI Foundation for building and developing the Chennai City Profile. I am certain that as we delve into the insights provided by the City Profile, it will lead to data-driven decision making that can enable our city towards a future where mobility is seamless, accessible to all and serves as a catalyst for inclusive growth. Together, let us continue to shape Chennai into a model of urban excellence.

(J. Radhakrishnan)

FOREWORD

Ambassador (Retd.) Gautam Bambawale
Managing Trustee, OMI Foundation

Harish Abichandani
First Trustee, OMI Foundation

In the vibrant tapestry of India's economic landscape, Tamil Nadu emerges as the beacon of industrialisation and economic prosperity, securing its position as the nation's second wealthiest state by GDP. With over 60% of its territory urbanised, it commands a substantial 10.6% of India's urban populace. This demographic dynamism, coupled with Tamil Nadu's burgeoning global economic influence and unwavering economic vitality, propels the state into a future brimming with possibilities. Its well-entrenched infrastructure and pioneering spirit in fostering knowledge and innovation earmark Tamil Nadu as a pivotal hub on the global stage.

The city's commitment to sustainable mobility is evident in policies such as adoption of non-motorised transport policy and the vision to invest in a comprehensive and elaborate public transit system, underscored by the Tamil Nadu EV Policy 2023. These efforts are complemented by the Greater Chennai Corporation's focus on improving pedestrian and cycling infrastructure to ensure an inclusive, safe and sustainable urban landscape.

The 'Ease of Moving Index - Chennai City Profile', developed by OMI Foundation, offers a detailed evaluation of the city's mobility framework, identifying areas for improvement and highlighting successful initiatives. This report can bean invaluable resource for policymakers, industry stakeholders, and civil society, providing data-driven insights for enhancing urban mobility. It addresses various stakeholder needs:

- For city authorities, It offers several insights on travel behaviour from time taken to expenditure incurred aiding concerned authorities to improve infrastructure, safety and guide mobility related investments..
- For electric vehicle (EV) and energy transition agencies, It offers strategies for enhancing EV adoption, improving air quality, and thereby contributing to action impacting climate change.
- For public transport and traffic management agencies, it suggests improvements in specific area of services, connectivity, and safety, etc. to elevate commuter experience.
- For industry stakeholders, the report outlines vehicle market dynamics and consumer preferences, crucial for OEMs, urban logistics, aggregators, FinTech, and transport service providers.

Chennai's efforts in creating sustainable mobility corridors, expanding Metro network, and engaging the community in mobility planning under Chennai Comprehensive Mobility Plan illustrate a commitment to seamless, multimodal mobility. Initiatives such as pedestrian plaza in T-Nagar and civic projects for clean air demonstrates the city's innovative approach to urban mobility.

The 'Ease of Moving Index - Chennai City Profile' is a strategic tool that empowers the city and its citizens to navigate the path towards sustainable mobility. It exemplifies the importance of data-driven strategies in fostering urban environments that prioritise sustainability and inclusivity.

We congratulate the dedicated team at OMI Foundation for their meticulous work on the Chennai City Profile, a significant contribution towards realising a sustainable, mobility-ready future.

OMI Foundation Trust is a policy research and social innovation think tank operating at the intersection of mobility innovation, governance, and public goodMobility is a cornerstone of inclusive growth providing the necessary medium and opportunities for every citizen to unlock their true potential. OMI Foundation endeavours to play a small but impactful role in ushering meaningful change as cities move towards sustainable, resilient, and equitable mobility systems that meet the needs of not just today or tomorrow, but the day after. OMI Foundation houses three interconnected centres which conduct cutting-edge evidence-based policy research on all things mobility.

Centre for Future Mobility

OMI Foundation's Centre for Future Mobility envisions a future which meets the aspirations of all in a diverse world, anchored in the paradigms of active, shared, connected, clean, and AI-powered mobility.

Centre for Clean Mobility

OMI Foundation's Centre for Clean Mobility explores the diversity of near- and long-term pathways to clean mobility. It focuses on the use of electric, future fuels, and renewable energy alike within the mobility ecosystem.

Centre for Inclusive Mobility

OMI Foundation's Centre for Inclusive Mobility ensures the existing and emerging mobility paradigms are Safe, Accessible, Reliable, and Affordable for every user of mobility infra and services, including persons with disabilities, women, trans/ non-binary, LGBTQIA+, children, and the elderly. It further paves the road for the future of work and platform economy to fulfil the modern promise of labour.

INTRODUCTION

Chennai, a bustling metropolis on the southern coast of India, is a city that has undergone a comprehensive evaluation of its mobility paradigm through the 'Ease of Moving[1] Index - India Report 2022 (EoMI 2022)' study conducted by the OMI Foundation. EoMI 2022 is a framework enabling cities to evaluate their mobility paradigm across nine parameters. It enables cities to benchmark against their peers and assess opportunities for improving specific mobility aspects in the city.
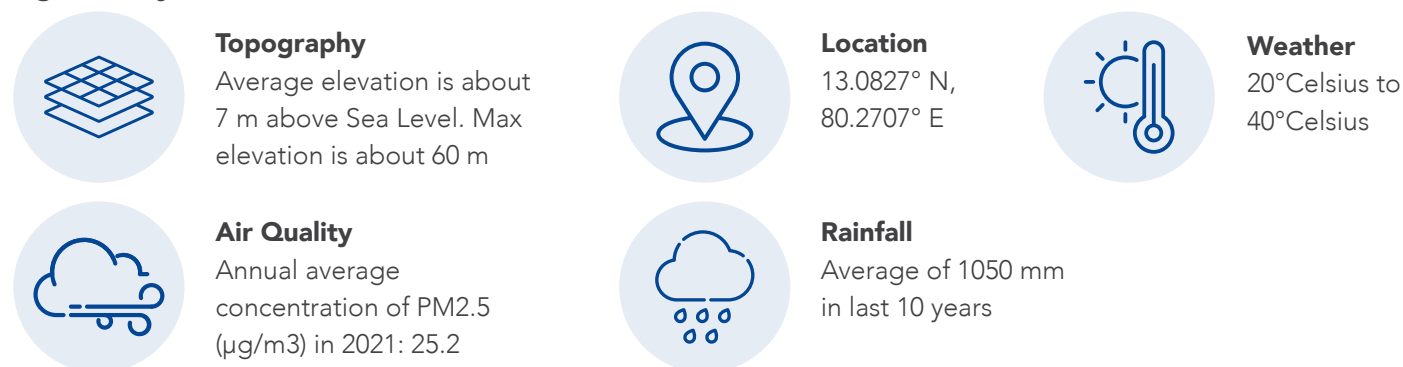
This city profile presents the key findings of EoMI 2022, focusing specifically on Chennai's mobility system. It provides a detailed analysis of the city's performance across the nine parameters (listed later in the document) of the Index, shedding light on the strengths and areas requiring attention in Chennai's mobility network. For an optimum understanding, readers are encouraged to explore this city profile in conjunction with the 'Ease of Moving Index - India Report 2022,[2] available on the OMI Foundation's website. The comprehensive report provides a broader context and deeper insights into the overall mobility scenario in India, allowing readers to gain a holistic perspective on Chennai's performance and its comparison with other cities across the country.

# CITY OVERVIEW

Contextual Characteristics

Chennai is the capital of Tamil Nadu and is located on the Coromandel Coast at the northern edge of the state. Figure 1 presents the key physical attributes of the city, while Figure 2 presents the population growth.

Figure 1:Physical Attributes of Chennai

Topography
Average elevation is about 7 m above Sea Level. Max elevation is about 60 m

Location
13.0827° N, 80.2707° E

Weather
20°Celsius to 40°Celsius

Air Quality
Annual average concentration of PM2.5 (μg/m3) in 2021: 25.2

Rainfall
Average of 1050 mm in last 10 years

Source: Topographic-map, 2022; IQ Air, 2022; Meteoblue, n.d.

Figure 2: Growth of Population in Chennai
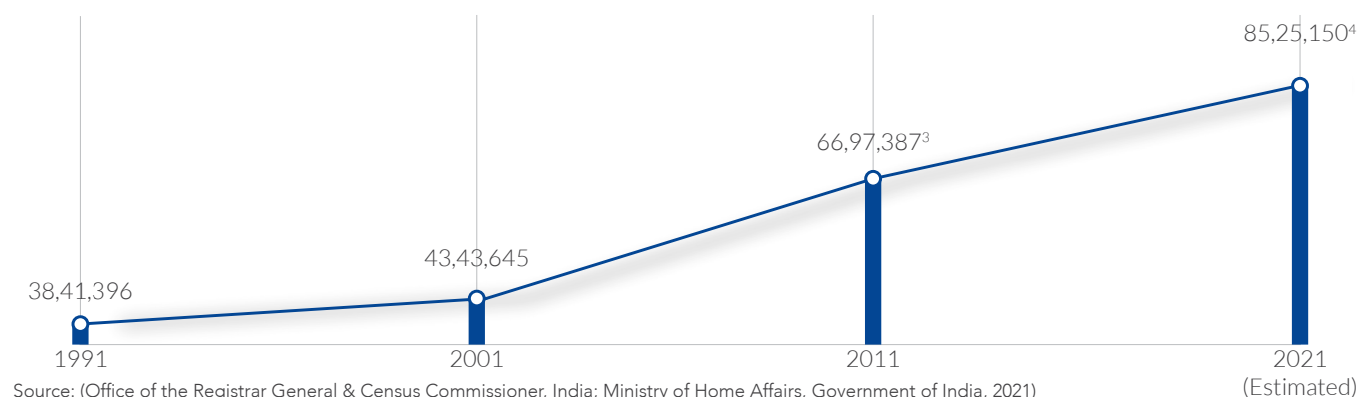
Source: (Office of the Registrar General & Census Commissioner, India; Ministry of Home Affairs, Government of India, 2021)

[1]The 'Ease of Moving' by OMI Foundation is based on globally recognised concepts of 'sustainable development' and the 'Ease of Living' as propounded by the United Nations and the Ministry of Housing and Urban Affairs, Government of India respectively.
[2]The report can be accessed here: https://olawebcdn.com/ola-institute/easeofmoving-2022.pdf
[3]The population growth rate estimated by MOSPI may not reflect the correct projection as the extent of Greater Chennai Corporation has expanded from 181 sq km in 2011 to 426 sq km. To that end, calculation is based on the area - 426 sq km.
[4]The projected population for 2021 of Chennai has been derived from the projected growth rate as suggested by MOSPI. The estimated population of the city for 2021 has grown by 30.44% since 1991.

Chennai

Legend

- ✈ Chennai International Airport
- 🚌 Parrys Bus Stand
- 🚌 Koyambedu Bus Terminus
- 🚌 Central Railway Station
- ▬ National State Highway
- ▬ Existing Metro line
- ▬ Proposed Metro Line
- • Survey locations chennai
- Road Network
- Railway Line
- Chennai Municipal Corporation

0   2.5   5   7.5 km

CITY ADMINISTRATION

Public Transport Authority

Metropolitan Transport Corporation (MTC)

Runs the public bus transport system in Chennai

3,448 buses across four types: ordinary, express, deluxe, and AC.

Southern Railways Chennai Division running the Suburban Train and the Mass Rapid Transit System (MRTS)

Operational: **108.74 km** across **4** corridors and **57** stations

Chennai Metro Rail Corporation Limited. (CMRL)

Builds and operates the metro rail network in Chennai

54.1 km operational and **118.9 km** approved of which **83.9 km** is under construction.

Scope of Administration

Traffic Police

Greater Chennai Traffic Police is divided into **3** zones (North, South and Central)

Regional Transport Office

9 Chennai; 1 Ambattur, 1 Tambaram, 1 Red hill, 1 Kanchipuram

Greater Chennai Corporation (GCC)

426 sq.km

Chennai Metropolitan Development Authority (CMDA)

1189 sq.km

Chennai Unified Metropolitan Transport Authority (CUMTA)

Chennai Metropolitan Area

EASE OF MOVING INDEX 2022 DATA COLLECTION AND RESPONDENT PROFILE

The Ease of Moving Index - India Report 2022 was developed based on findings fromprimary surveys, focus group discussions (FGDs) and secondary data analysis. To ensure comparability, the 40 cities were divided into four clusters based on their estimated 2021 population. Chennai falls within the 'Mega cities cluster,' consisting of nine cities[5], each with a population exceeding 4 million.

Age Distribution

15.45%
< 18 Year

24.02%
18 – 25 Years

41.49%
26 - 40 Years

15.74%
40-60 Years

3.29%
>60
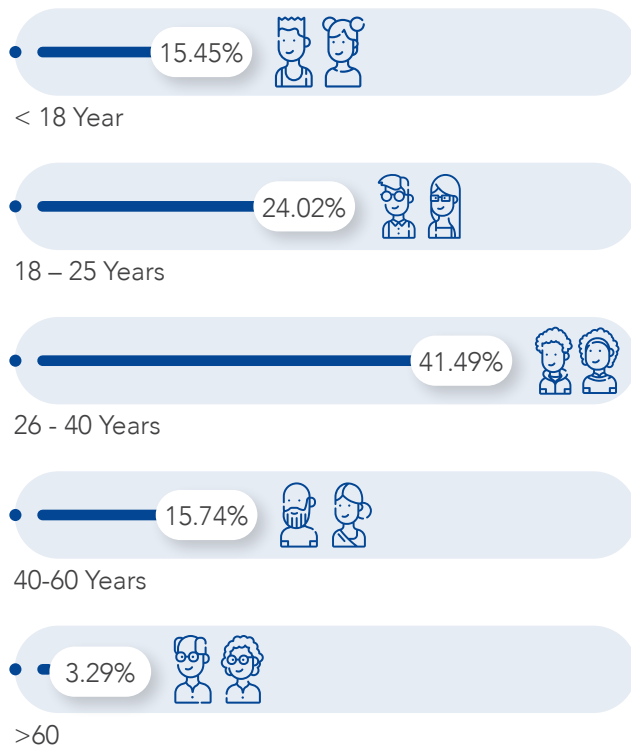
Sample size for primary data collection

Survey: **3,126 respondents**

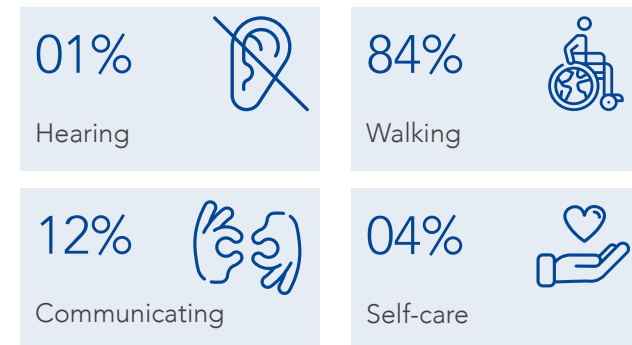FGD: **10 women participants**

Survey sample and FGD participants

The primary survey was based on a randomly selected and statistically significant sample, stratified by gender, disability, and household income. The sample size was determined with a 95 percent confidence level and a 5 percent margin of error, based on the estimated population for 2021. Additionally, a FGD was conducted with a group of 10 regular women commuters, centering on women's safety in public transport.

Gender Distribution

Trans/ Non-Binary
02%

Men
56%

Women
43%
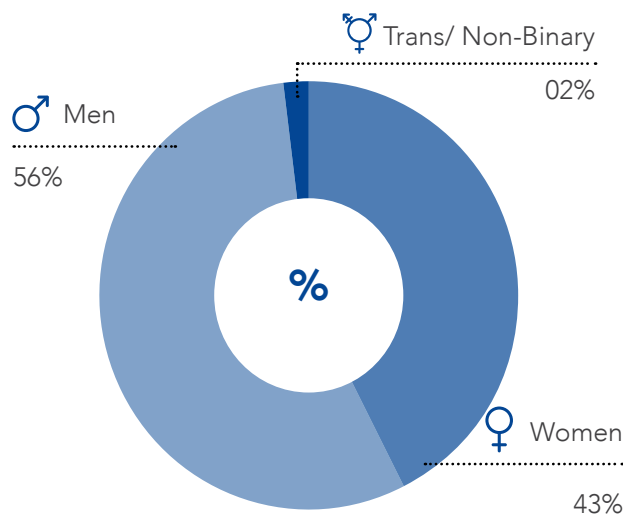
Distribution of disabilities/functional difficulties[6]

01%
Hearing

84%
Walking

12%
Communicating

04%
Self-care

Gender distribution of persons with disabilities

Trans/ Non-Binary
01%

Men
27%

Women
72%

Persons with Disabilities
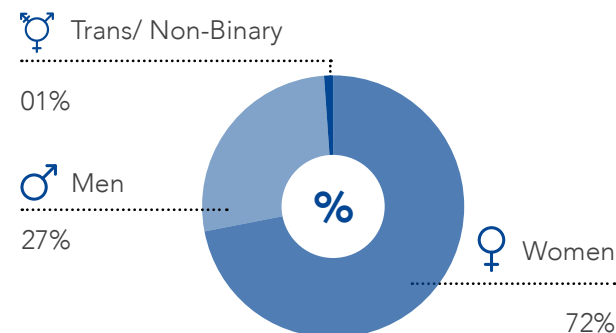
4.29%
total survey respondents

[5]The Mega Cities cluster includes the cities of Ahmedabad, Bengaluru, Chennai, Hyderabad, Kolkata, Mumbai, New Delhi, Pune-Pimpri Chinchwad and Surat.
[6]Total will exceed 100% as a survey respondent may have multiple disabilities/ functional difficulties

Highest Educational Qualification

- 14%
- 35%
- 12%
- 08%
- 26%
- 5%
- 0.2%

① < 10th ② 10 – 12th Pass ③ Diploma ④ Undergraduate

⑤ Graduate ⑥ Post Graduate equivalent ⑦ Doctoral and above

Average Household Size

4

House Ownership

57%
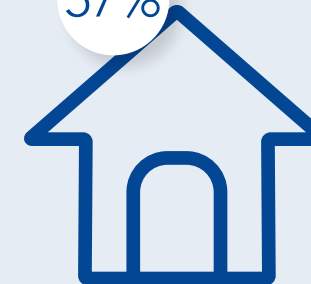
Residing in own house

Occupation

%

- Seeking work — 06%
- Domestic duties only — 03%
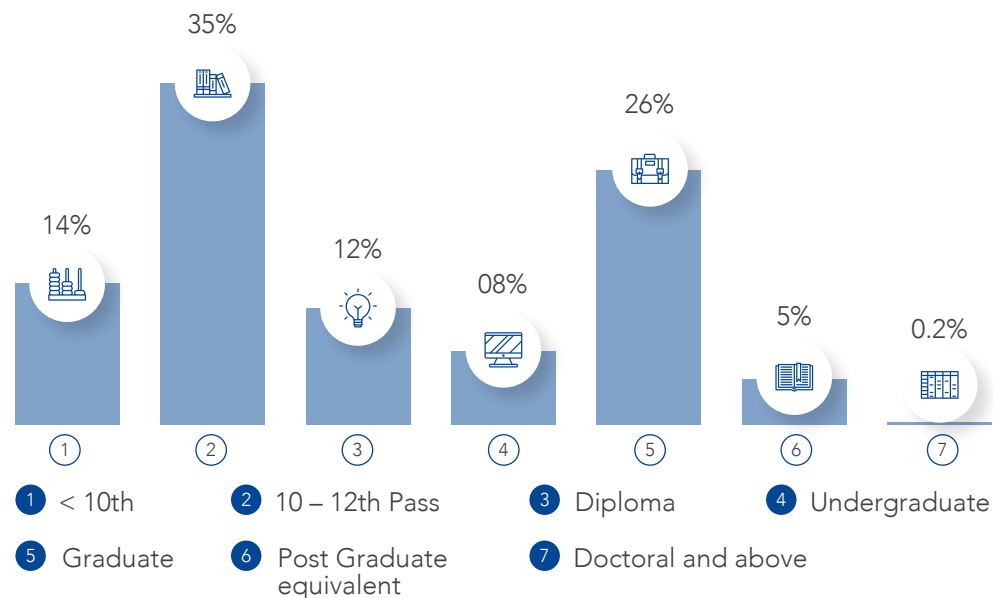- Casual wage worker/ contract worker — 07%
- Regular wage/ salaried employee — 30%
- Others — 04%
- Student — 11%
- Self Employed/ Own account worker — 09%
- Gig- platform worker — 08%
- Employer — 23%

Household Income

Income	Percentage
< INR 15,000 per month	24%
INR 15,001 – 30,000 per month	24%
INR 30,001 – 50,000 per month	21%
INR 50,001 – 1,00,000 per month	21%
> INR 1,00,000 per month	9%

11
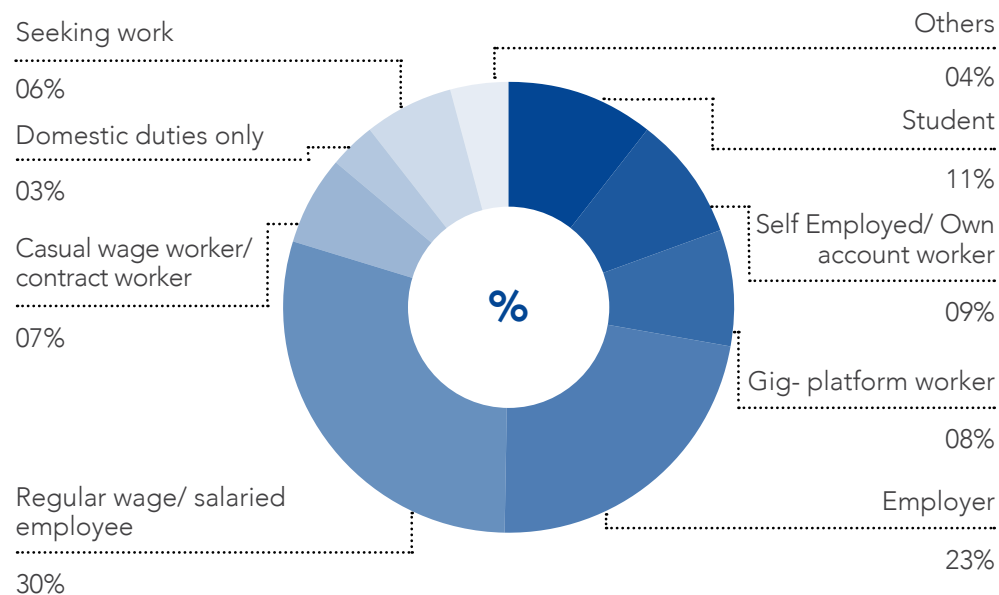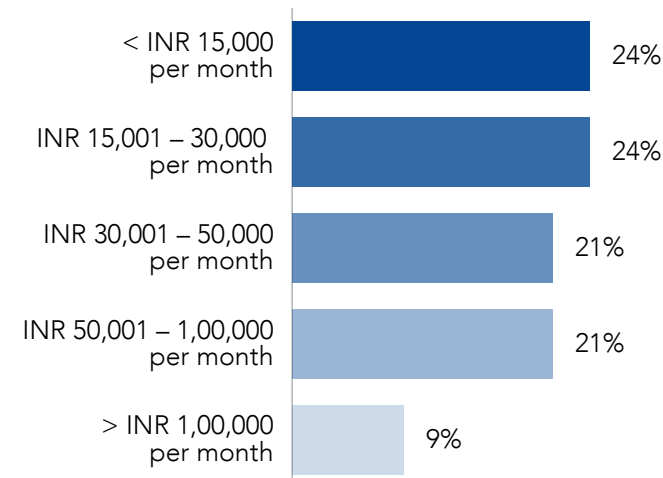
INSIGHTS FROM THE EASE OF MOVING INDEX 2022

IMPETUS FOR ACTIVE AND SHARED MOBILITY

A robust urban infrastructure supporting active and shared mobility plays a pivotal role in creating a cleaner and more sustainable environment. By promoting physical activity and reducing traffic congestion, it enhances public health while offering affordable and inclusive transportation choices. This, in turn, improves accessibility and fosters social equity within the community, making it crucial to give impetus to active and shared mobility in cities. Here's how Chennai fairs on this parameter.
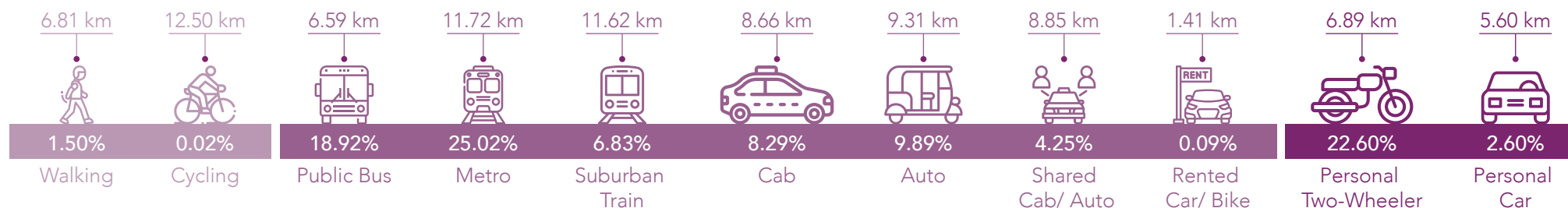
- In Chennai, public transport comprises **50.77%** of the mode share, while the combined mode share of active and shared mobility reaches **74.8%.**

- Chennai stands out in the Mega Cities cluster for the high adoption of public transport, with **95.82%** of respondents regularly utilising it. This is supported by a substantial availability of 43.5 buses per lakh population, surpassing the cluster average of 38.34 buses. However, compared to Bengaluru's 67.1 buses per lakh population, Chennai has an opportunity to further increase its bus count.

- In terms of mass transit infrastructure, Chennai leads the cluster with 3.3 km per lakh population (built and under construction), while the current infrastructure stands at 1.9 km per lakh population.

- Among regular public transport users, **90.22%** also own some form of motor vehicle (two-wheeler/car/three-wheeler). Interestingly, **38.62%** of these vehicle owners choose not to use their vehicles due to the reliability of public transport and the availability of alternatives such as autos and cabs. Additionally, **36.78%** cited the high cost of vehicle ownership as their reason for relying on public transport. Yet another **2.09%** indicated that family restrictions prevent them from using public transport, primarily due to longer travel times and accessibility concerns.

- While **38.3%** of survey respondents reported good accessibility to public transportation throughout Chennai, **9.33%** of regular users expressed their reluctance to use public transport at night. This reluctance stems from the unavailability and unreliability of transportation services in their areas, highlighting an unequal distribution of the public transport network.

Mode share and average trip length, as reported by EoMI survey respondents

	Walking	Cycling	Public Bus	Metro	Suburban Train	Cab	Auto	Shared Cab/ Auto	Rented Car/ Bike	Personal Two-Wheeler	Personal Car
Distance	6.81 km	12.50 km	6.59 km	11.72 km	11.62 km	8.66 km	9.31 km	8.85 km	1.41 km	6.89 km	5.60 km
Mode share	1.50%	0.02%	18.92%	25.02%	6.83%	8.29%	9.89%	4.25%	0.09%	22.60%	2.60%

The average commute distance is 8.81km across all modes.

Cumulative number of vehicles registered in Chennai between 2011-12 to 2020-21

| Year	Cars	Two-wheelers
2011-12	5,35,492	28,61,802
2012-13	5,90,744	30,87,298
2013-14	6,41,589	33,03,863
2014-15	6,88,042	35,09,159
2015-16	7,40,203	37,41,566
2016-17	7,98,428	39,99,354
2017-18	8,56,270	42,54,811
2018-19	9,10,992	45,21,107
2019-20	9,60,084	47,56,320
2020-21	9,99,497	49,03,370
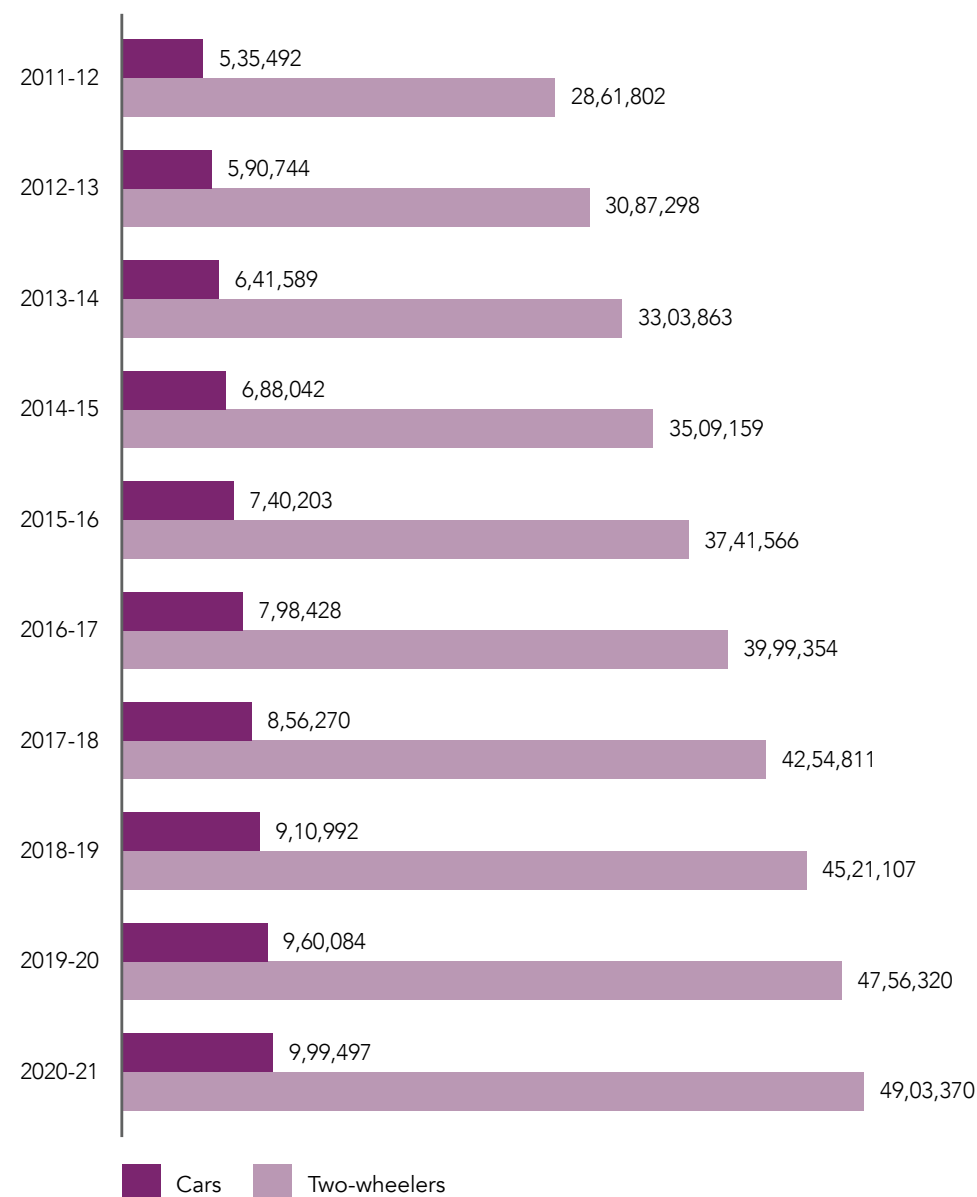
Cars   Two-wheelers

Source: (Tamil Nadu State Transport Authority, 2021)

Vehicle growth and ownership patterns

- Over the past decade, Chennai witnessed a significant growth in registered vehicles with a **6.6%** CAGR. The number of registered two-wheelers increased at a CAGR of **6.2%** while the number of registered cars grew at a CAGR of **7.2%**. These figures are noteworthy when compared to the population's **2.82%** CAGR during the same period.

Per thousand ownership	Chennai	Cluster Average	Lowest
Two Wheelers	575.1	413.93	Kolkata - 142.6
Cars	118.4	125.48	Hyderabad - 57.08

The vehicle ownership as per the EoMI survey in Chennai is

6.6%	36.2%	84.3%
No Vehicle	Bicycle	Two Wheeler

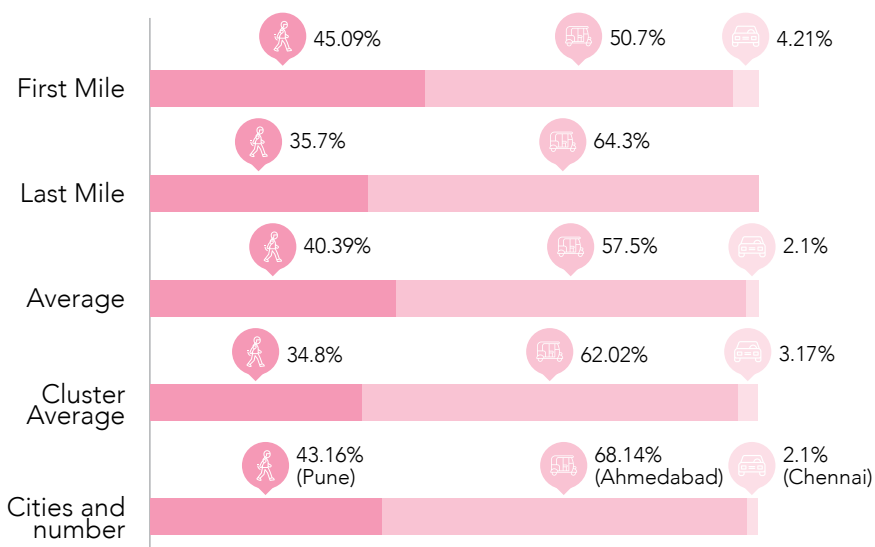| 4.1%	34.3%
Three Wheeler	Car

13
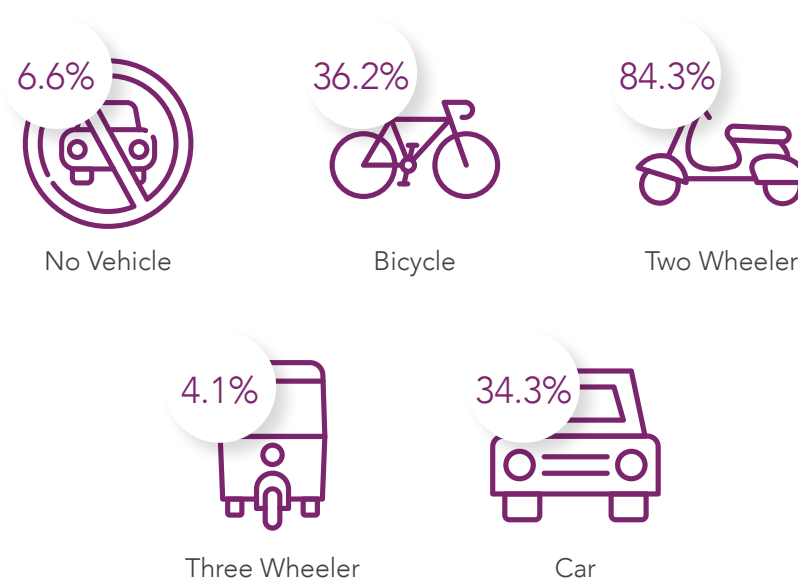
SEAMLESS MOBILITY

The integration of various transportation modes through seamless multimodal connectivity plays a vital role in promoting active and shared mobility and significantly affects individual mode choices. Chennai is currently in the process of developing metro connectivity while also maintaining a well-established network of buses and trains, which are further supported by high-quality feeder services.
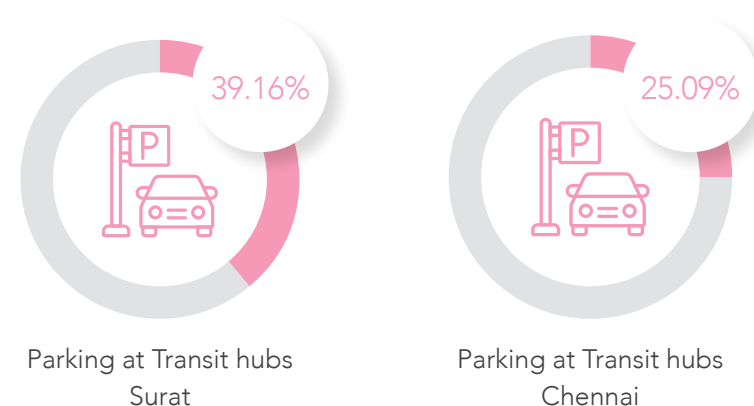
First- and last-mile connectivity to public transport

- In Chennai, **40.39%** of regular public transport users walk to transit stops, surpassing the cluster average of **34.8%** (second only to Pune Pimpri Chinchwad at **43.16%**).
- Approximately **57.5%** of respondents rely on IPT modes for first-mile and last-mile connectivity to public transport, which is lower than the cluster average of **62.02%** (with Ahmedabad leading at **68.41%**), indicating significant room for improvement.
- Only **2.1%** of regular public transport users in Chennai use personal vehicles to access public transit, the lowest within the cluster.

Modes used for first and last mile connectivity by regular public transport users (n=2,566)

	Walk	Bus/IPT	Personal vehicle
First Mile	45.09%	50.7%	4.21%
Last Mile	35.7%	64.3%	
Average	40.39%	57.5%	2.1%
Cluster Average	34.8%	62.02%	3.17%
Cities and number	43.16% (Pune)	68.14% (Ahmedabad)	2.1% (Chennai)

Parking facilities

39.16%

25.09%

Parking at Transit hubs
Surat

Parking at Transit hubs
Chennai

Unified Metropolitan Transport Authority (UMTA)

- Chennai's pursuit of a seamless mobility system is supported by the Chennai Unified Metropolitan Transport Authority (CUMTA), established in 2010 and formally notified in 2019. CUMTA plays a crucial role in coordinating and monitoring traffic and transportation measures throughout the Chennai Metropolitan Area. It is worth noting that Chennai is among the five cities[7] in the cluster that has a UMTA.

[7]From the cluster of Mega cities, Bengaluru, Chennai, Hyderabad, Mumbai, Pune-Pimpri Chinchwad have constituted an UMTA, while it is in the draft stage in New Delhi.

Access and wait time for public transport
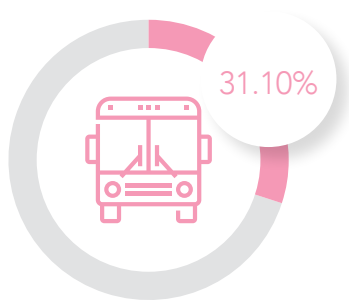
31.10%

- **31.10%** of respondents in Chennai expressed dissatisfaction regarding the waiting period for boarding public transport.

Time to access nearest transit hub

Chennai
8 minutes and 9 seconds

Mumbai
8 minutes and 8 seconds

Average wait time for public transport

Chennai
9 minutes and 2 seconds

Mumbai
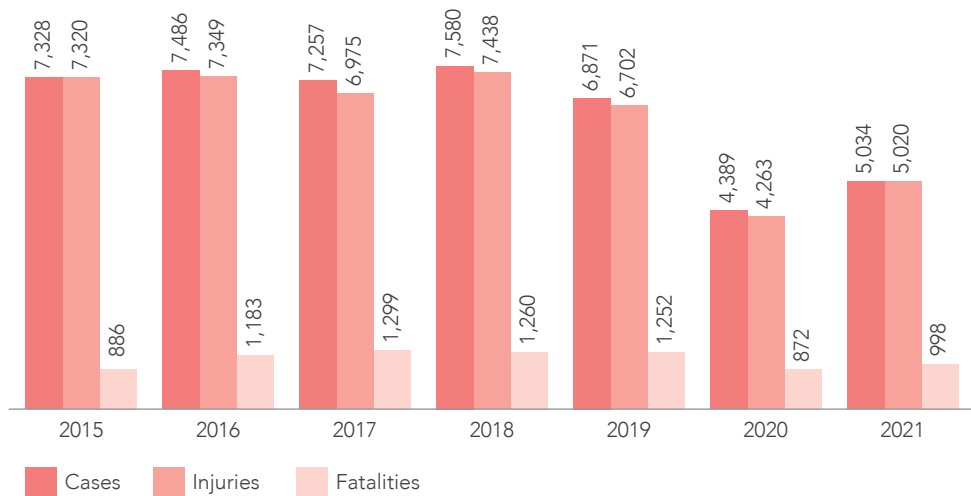9 minutes

TOWARDS VISION ZERO

Reducing road accidents is crucial for improving public safety and promoting sustainable mobility, making it a top priority for urban planners and policymakers alike. Here's a look at Chennai's records on this front.

Road Safety and Fatalities

- Chennai has achieved a **23.17%** reduction in road fatalities in 2021 from its peak of 1299 deaths in 2017.
- Despite a reduction in road fatalities and accidents since 2017, Chennai still ranks as the second-highest city in terms of absolute numbers of fatalities in 2021, following Delhi's count of 1172.
- The city has the highest fatality rate per lakh population within its cluster, with 11.71 fatalities per lakh population, surpassing Pune-Pimpri Chinchwad (8.97) and Delhi (7.48).
- Vulnerable road users, including pedestrians, cyclists, and two-wheelers, accounted for nearly **47.39%** of the total fatalities in Chennai in 2021.

Road Accident details from 2015 to 2021

|	2015	2016	2017	2018	2019	2020	2021
Cases	7,328	7,486	7,257	7,580	6,871	4,389	5,034
Injuries	7,320	7,349	6,975	7,438	6,702	4,263	5,020
Fatalities	886	1,183	1,299	1,260	1,252	872	998

Source: Data obtained from National Crime Records Bureau for various years

Pedestrian and cycling infrastructure

- Chennai scores the lowest in the cluster with only **19.6%** of respondents considering the footpaths in the city to be wide and in good condition. This is notably lower than the cluster average of 31% and falls far behind Hyderabad and Mumbai, where approximately **40.6%** of respondents are satisfied with the quality of footpaths.
- Only **18.36%** of respondents in Chennai believe that major junctions in the city have sufficient grade separators like Foot Over Bridges (FOBs) and Subways. This places Chennai in the second last position within the cluster, with Pune Pimpri Chinchwad and Bengaluru having higher percentages at **43.6%** and **42.6%**, respectively.
- Chennai has 17.5 km of disjointed cycle tracks (Shekhar, 2021). Notwithstanding this, nearly **50%** of respondents in Chennai, the highest percentage within the cluster, believe that there are sufficient cycle tracks and lanes available throughout the city.
- Chennai has a network of public bicycle sharing at almost all metro stations. The 3rd generation public bicycle system is operated by Smartbike. Over **42%** respondents agree that availability of public bicycle sharing will encourage them to cycle for short distances.

Illumination on roads and footpaths

27.83%

Road Illumination

19.58%
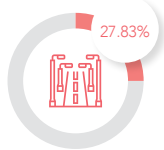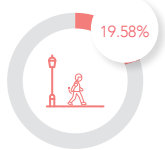
Footpath Illumination

- While these figures are close to the cluster averages, there is still room for improvement when benchmarked against cluster leaders. **30.22%** respondents in Ahmedabad were satisfied with the road illumination, and **41.57%** of respondents were satisfied with the lighting on footpaths in their cities.

MOBILITY FOR ALL

Inclusive urban mobility ensures that everyone, regardless of their age, gender, ability, income level, or background, has equal access to transportation options. It reduces transportation-related inequalities and enables individuals to participate in the economic, social, and cultural activities within the city.

Persons with Disabilities and public transport accessibility

- According to the survey results, **74.62%** of respondents in Chennai with disabilities or difficulties in walking, communication, self-care and hearing use public transport regularly.

Respondent perception regarding accessibility of public transport for persons with disabilities (n=116)
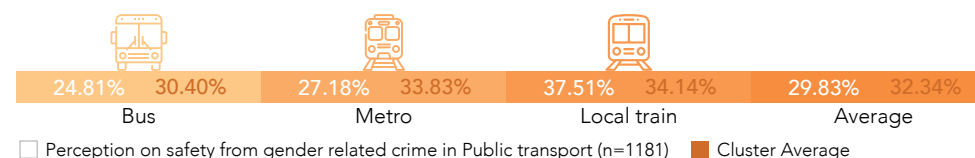
Modes of Commute	Disagree	Neutral	Agree	Cluster Average
Bus	57.76%	14.66%	27.59%	29.18%
Metro	69.83%	19.83%	10.34%	32.03%
Train	83.62%	83.62%	1.72%	12.54%
Average	70.40%	16.38%	13.22%	29.00%

- Chennai lags behind Mumbai where **43.32%** of persons with disabilities respondents agreed that public bus transport is accessible, Delhi where **63.86%** participants find the metro accessible, and Hyderabad where **39.16%** respondents agree that MMTS trains are accessible.
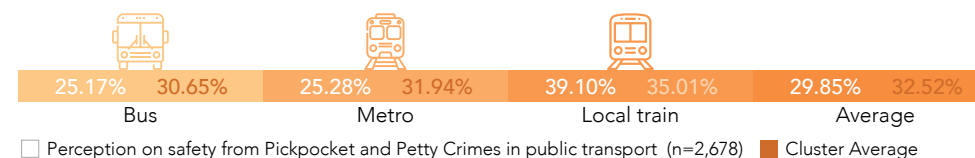
Safety from gender-based crimes

- In Chennai, over **90.6%** women and trans/non-binary respondents use public transport regularly.
- Among the female, trans/non-binary respondents, only **29.83%** agreed that public transport in Chennai is safe from gender related crime events such as eve teasing and molestation, compared to **35.28%** respondents across the megacities cluster..

Safety from gender related crime events such as eve teasing and molestation in public transport (n=1181)

Bus		Metro		Local train		Average	
24.81%	30.40%	27.18%	33.83%	37.51%	34.14%	29.83%	32.34%

☐ Perception on safety from gender related crime in Public transport (n=1181) ■ Cluster Average

- Across the Mega cities cluster, Bengaluru leads in considering public bus transport safe from gender-related crimes at **41.47%**. Pune-Pimpri Chinchwad takes the lead in metro safety with **69.08%**, while Mumbai leads in sub-urban rail safety at **39.43%**. Pune-Pimpri Chinchwad has the highest overall average safety rating for gender-related crimes across public transport systems in the mega cities cluster, with a rating of **47.54%**. This indicates a significant room for improvement.

Safety from pickpockets and other petty crimes in public transport(n=2678)

Bus		Metro		Local train		Average	
25.17%	30.65%	25.28%	31.94%	39.10%	35.01%	29.85%	32.52%

☐ Perception on safety from Pickpocket and Petty Crimes in public transport (n=2,678) ■ Cluster Average

- Chennai ranks lower in safety compared to Ahmedabad, Pune-Pimpri Chinchwad, Hyderabad, and Surat among the mega cities. Ahmedabad leads in public bus safety with **42.33%**, while Pune-Pimpri Chinchwad takes the lead in metro safety with **49.06%**, and Hyderabad leads in sub-urban rail safety with **50.59%**. Surat has the highest overall average safety rating in the mega cities cluster, achieving a rating of **42.16%**.

AFFORDABLE MOBILITY

Affordable mobility allows individuals to access essential services like education, healthcare and job opportunities, regardless of their financial situation. Affordable transport systems allow low-income households to allocate their budget on other important services like education, housing, and healthcared, thereby contributing to a more equitable distribution of resources.

Public transport affordability

- Only **29.94%** respondents from Chennai find public transport affordable, compared to **37.89%** across the megacities cluster. Of the respondents with monthly household income less than 30,000, only **30.07%** find public transport affordable, compared to **38.11%** across the cluster. Table below provides details about the perception of affordability.

Affordability of public transport

Public Transport Mode	Perception of affordability (income agnostic)	Perception of affordability (monthly household income less than 30,000)
Bus	25.17%	25.08%
Metro	25.28%	25.32%
Train	39.36%	39.83%
Average	29.94%	30.07%

- Chennai ranks lower in affordability compared to Bengaluru, Pune-Pimpri Chinchwad, and Surat among the mega cities. **40.01%** respondents from Bengaluru find buses affordable, whereas respondents from Pune-Pimpri Chinchwad deem metro, local train and overall public transport affordable, with the respective scores of **68.31%**, **65.02%**, and **57.67%**.
- Among the respondents with monthly household income less than 30,000, Surat leads in bus affordability, with **41.88%**, and Pune-Pimpri Chinchwad leads in affordability in metro, local train and overall public transport, with the respective scores of **69.02%**, **64.46%**, and **57.68%**.

Unaffordable mobility as a roadblock

- EoMI finds that **10.34%** respondents in Chennai said no to an opportunity due to difficulty in commuting, compared to the cluster average of **5.18%**, and no one
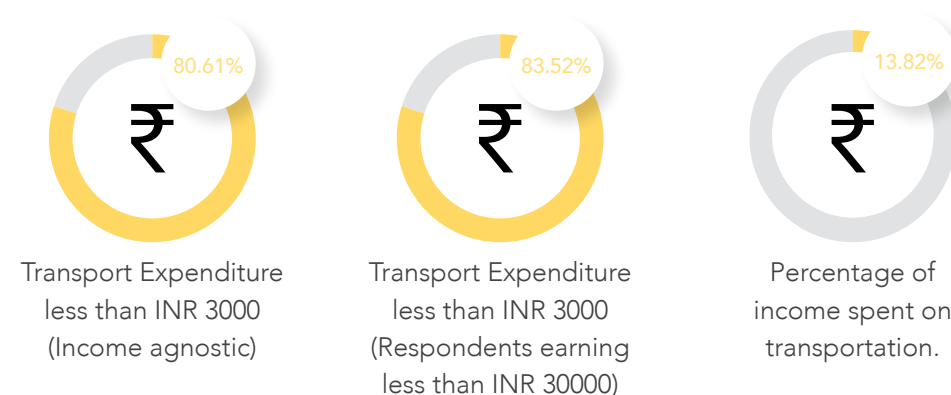
in Ahmedabad, Hyderabad, and Surat.
- **96.75%** of the respondents who said no to an opportunity in Chennai, attributed their loss of opportunity to the high cost of travel. Chennai tops the cluster in impeding the access to opportunities due to high commuting cost, which is far greater than the cluster average of **38.62%**, and no one in Ahmedabad, Hyderabad, Mumbai, and Surat

Monthly expenditure on travel

- The monthly travel expenditure in Chennai is low, with over **80.61%** of respondents reporting spending less than INR 3,000 per month on transportation. Approximately **48.72%** (1,523 respondents) have a monthly household income below INR 30,000, and roughly **83.52%** of them spend less than INR 3,000 on transportation.The respondents with household income less than INR 30,000 reported spending **13.82%** of their income on transport, compared to the cluster average of **11.98%**, and cluster minimum of **9.65%** in Hyderabad.

Chennai Transport expenditure

80.61%

Transport Expenditure less than INR 3000 (Income agnostic)

83.52%

Transport Expenditure less than INR 3000 (Respondents earning less than INR 30000)

13.82%

Percentage of income spent on transportation.

EFFICIENT AND RELIABLE MOBILITY

Efficient and reliable mobility is a key aspect of any well-functioning transportation system. In this regard, access to timely and accurate information on fare and timetables, and efficient public transport is crucial for making informed travel decisions. Time taken for trips is a pertinent yardstick for measuring efficiency of public transport.

Availability of information

- According to EoMI, only **38.86%** of respondents in Chennai reported having easy access to information pertaining to fares and timetables of public transport, compared to the cluster average of **45.60%**. Specifically, **25.17%** find the information accessible for buses, compared to **51.53%** for the metro. The details of the ease of access to information have been furnished in below.

Respondent perception regarding easy availability of information on timetable, fare etc of public transport modes (n=2678)

Modes of Commute	Disagree	Neutral	Agree	Cluster Average
Bus	48.84%	25.99%	25.2%	38.81%
Metro	23.71%	24.76%	51.53%	50.64%
Train	39.73%	20.39%	39.88%	47.15%
Average	37.43%	23.71%	38.86%	46.54%

- While the highest percentage of respondents that agreed on public transport information on timetable, fares etc being easily available was in Surat (**65.22%**), for buses it was Ahmedabad (**65.37%**). Within Tamil Nadu, Coimbatore, **38.30%** respondents agree that public bus transport information on timetable, fares etc is easily available.
- Surprisingly, less than **5%** of respondents accessed this information through digital means, with the majority obtaining it at transit stops or through word of mouth.

Availability of public transport

- While a considerable proportion of public transport users (over **38%**) in Chennai found public transport to be easily accessible across the city, the survey results indicate that a majority of respondents felt that the metro and trains were more readily available than public buses. This finding suggests the need to improve the accessibility and frequency of bus services in the city.

Respondent perception regarding ease of availability of Public transport between any two points in the city" (n=2678)

Modes of Commute	Disagree	Neutral	Agree
Bus	60.23%	14.6%	25.17%
Metro	26.14%	24.12%	49.74%
Train	40.74%	19.27%	39.99%
Average	42.37%	19.33%	38.3%

Public Transport vs private vehicle

- On average, **40.37%** respondents from Chennai stated that reaching their frequented destination is significantly faster using public transit as compared to using their own vehicles. This is higher than the cluster average of **38.94%**, and the city stands second behind Hyderabad (**40.67%**) in its cluster.

Average commute duration

- The average travel time based on the stated responses was a little over 31 minutes 34 seconds, but almost **58.53%** of work trips and **57.54%** of education trips in Chennai were made under 30 minutes. The work trip distribution across time intervals for Chennai is highlighted below. Among the mega cities, an average of **58.33%** work trips were made under 30 minutes with Ahmedabad (**62.7%**) reporting highest. Within Tamil Nadu, Coimbatore reported **77.65%** work trips under 30 minutes.

Distribution of Work trips across different time intervals;

60-90 min
5.99%

45-60 min
9.95%

Less than 10 min
4.14%

10-30 min
54.39%

30-45 min
25.53%

Time spent on First Mile/ Last Mile connectivity

- On an average **32.64%** respondents take less than 10 minutes to walk/ cycle to the nearest transit stop for first and last mile connectivity while almost **43.82%** respondents take less than 10 minutes to reach the nearest transit stop by shared mobility modes in Chennai. Among mega cities, **24.98%** respondents on an average take less than 10 minutes to walk/ cycle to the nearest transit stop for first and last mile connectivity while the highest percentage was recorded by Pune-Pimpri Chinchwad (**34.68%**).
- On an average **46.81%** respondents take less than 10 minutes by shared mobility to reach the nearest transit stop for first and last mile connectivity while the highest was recorded by Kolkata (**50.08%**). Within Tamil Nadu, Coimbatore an average of **26.16%** respondents access nearest transit stop within 10 minutes by walk/cycle while it was **43.19%** for shared mobility.

Congestion and crowding

- **45.65%** of the respondents from Chennai agree that the roads are not congested, which is considerably close to the cluster average **45.44%**.
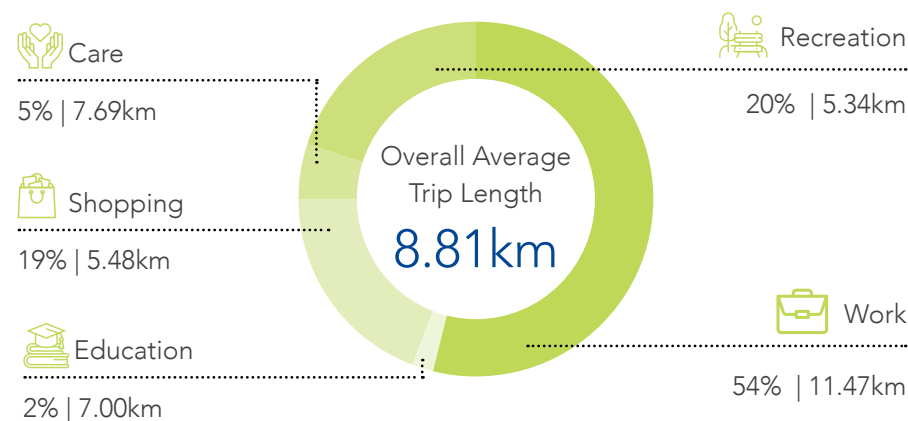
- Overall **29.55%** of public transport users felt it is overcrowded and it is difficult to find a space to sit or even stand. Most people felt that the suburban trains are more crowded than the bus and the metro. Among the mega cities an average of **34.16%** public transport users feel it is overcrowded with the highest percentage of bus users in Surat (**49.04%**), while the highest average across all public transport systems was in Pune-Pimpri Chinchwad (**57.65%**). About **38.3%** respondents using public buses within Tamil Nadu, Coimbatore, felt it is overcrowded and it is difficult to find a space to sit or even stand.

Respondent perception regarding state of overcrowding in Public Transport (n=2678)

Modes of Commute	Disagree	Neutral	Agree
Bus	48.84%	25.99%	25.17%
Metro	51.38%	23.34%	25.28%
Train	40.74%	21.06%	38.20%
Average	46.99%	23.46%	29.55%

- Over **54%** of the trips as stated by respondents were for work. Though **11%** of the respondents identified themselves as students only **2%** of the trips made were for education.

Trip Distribution and average trip length based on trip purpose

Care
5% | 7.69km

Shopping
19% | 5.48km

Education
2% | 7.00km

Recreation
20% | 5.34km

Overall Average Trip Length
8.81km

Work
54% | 11.47km

CLEAN MOBILITY

Clean and sustainable mobility is a key focus in modern urban planning, with a goal to reduce carbon emissions, improve air quality, and create a healthier environment. Moreover, emphasising hygienic mobility practices, including cleanliness measures in public transport, enhances the safety and well-being of commuters. Here's how Chennai fares in terms of clean mobility:

Deaths due to PM2.5 pollution

- In 2019, Chennai experienced a concerning number of deaths attributed to PM2.5 pollution, with 84.34 deaths per lakh population. This figure is notably higher compared to Bengaluru, which recorded the lowest number of deaths in the cluster at 73.12 deaths per lakh population (Health in Cities, n.d.)

Electric Vehicle (EV) adoption

- Electric vehicles are gradually gaining traction among respondents. Approximately **2.37%** of the total two-wheelers owned by the respondents were electric vehicles. In the case of bicycles, **2.3%** were either pedal-assisted or electric cycles.

Reasons for unwillingness to buy electric vehicle (n=2238)

Reasons for unwillingness to buy Electric Vehicle	Chennai	Cluster Average
Electric vehicle are more expensive than ICE vehicles	6.03%	5.93%
Limited finance options	20.29%	19.86%
High cost of finance	2.23%	2.41%
Safety concerns	85.84%	85.40%
Not enough EV options in the market to choose from	42.00%	40.91%
Inadequate charging infrastructure	77.17%	77.43%
No clarity on resale/ resale value of EVs	3.71%	3.63%
Concerned about technology and reliability of existing EVs	49.06%	51.10%
Lack of service centres/ skilled mechanics	7.33%	6.71%
I'm not aware of the EV technology	3.08%	3.07%
I own a car /recently purchased personal vehicle so not planning to buy one in the next few years	3.26%	3.31%

- **28.41%** of respondents (although lower than the cluster average of **34.50%**) expressed their willingness to purchase electric vehicles in the near future. However, there are certain concerns that discourage people from adopting personal electric vehicles. The top three concerns identified were safety, inadequate public charging infrastructure, and doubts regarding the reliability of existing technology.

Cleanliness and hygiene perception in public transport

Respondent Perception on cleanliness, hygiene and maintenance/upkeep of Public transport (n=2678)

Modes of Commute	Disagree	Neutral	Agree	Cluster Average
Bus	41.56%	19.53%	38.91%	39.63%
Metro	51.38%	23.34%	25.28%	39.79%
Train	40.10%	19.49%	40.40%	30.76%

- Among the respondents who regularly use public transport, **38.91%** in Chennai perceive buses to be clean and hygienic, which is comparable to the cluster average of **39.63%** but lower than Mumbai's score of **40.24%**. However, only **25.28%** of respondents find the Metro to be clean, significantly lower than the cluster average of **39.79%** and Pune-Pimpri Chinchwad's score of **68.92%**, placing Chennai among the bottom two cities in the cluster. On a positive note, Chennai leads the cluster with **40.40%** of respondents perceiving local trains to be clean and hygienic.
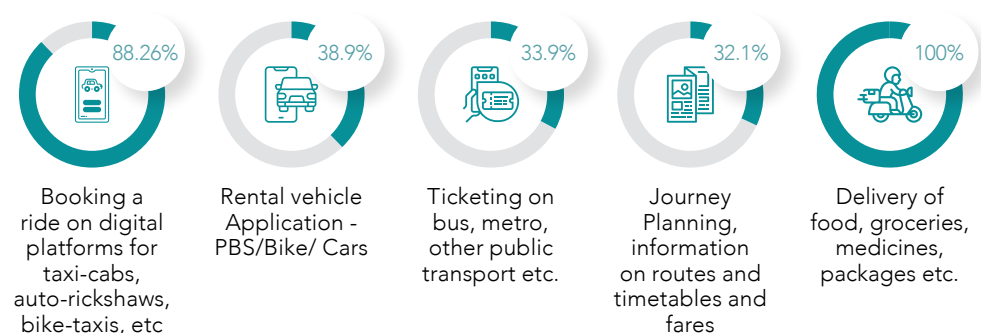
FUTURE MOBILITY

The ubiquity of smartphone applications has brought about a transformative shift in how people make mobility decisions and facilitate payments. This has led to greater flexibility and convenience in choosing the most appropriate transportation mode, whether it's for commuting or package delivery. Additionally, integrated payment systems within these apps have significantly enhanced the efficiency and security of transactions, eliminating the need for traditional cash-based payments. In the context of Chennai, let's explore the extent to which citizens embrace technology-enabled mobility and payment solutions:

Mobility and package delivery

Percentage of respondents with smart phones having at least one application for different services

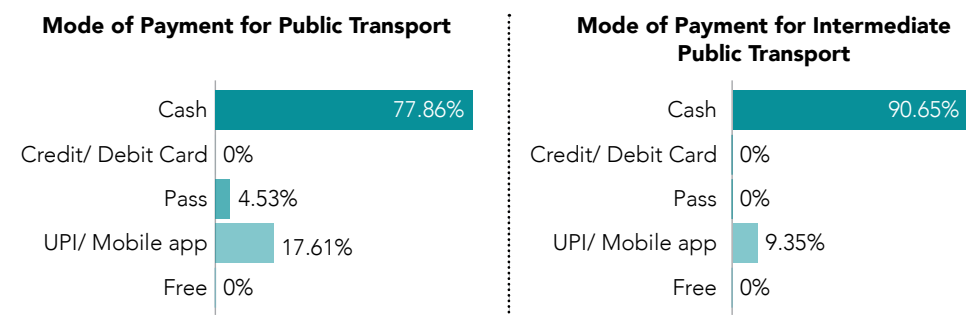| 88.26%	38.9%	33.9%	32.1%	100%
Booking a ride on digital platforms for taxi-cabs, auto-rickshaws, bike-taxis, etc	Rental vehicle Application - PBS/Bike/ Cars	Ticketing on bus, metro, other public transport etc.	Journey Planning, information on routes and timetables and fares	Delivery of food, groceries, medicines, packages etc.

- Over **98%** of respondents use a smartphone. Of these, **88.26%** have at least one app to book a ride on digital platforms and **100%** have at least one app for food and package delivery. However, the percentage of respondents having at least one app for rental vehicle applications, ticketing for public transport and journey planning, etc are significantly lower. This pattern is observed across the cities in the cluster.

Paying for mobility, and package delivery

- UPI/ Mobile applications are the most popular and acceptable mode for cashless payment. While almost **36%** of respondents using parking facilities pay by UPI/ Mobile applications, its usage for payment in public transport is still at a nascent stage. The geometric mean for the adoption of cashless payment was found to be **18%**.

Payment for public and intermediate public transport

Distribution of payments made for different mobility services - parking (n=2,433), public transport, and IPT (n=2,566).

Mode of Payment for Public Transport

Cash	77.86%
Credit/ Debit Card	0%
Pass	4.53%
UPI/ Mobile app	17.61%
Free	0%

Mode of Payment for Intermediate Public Transport

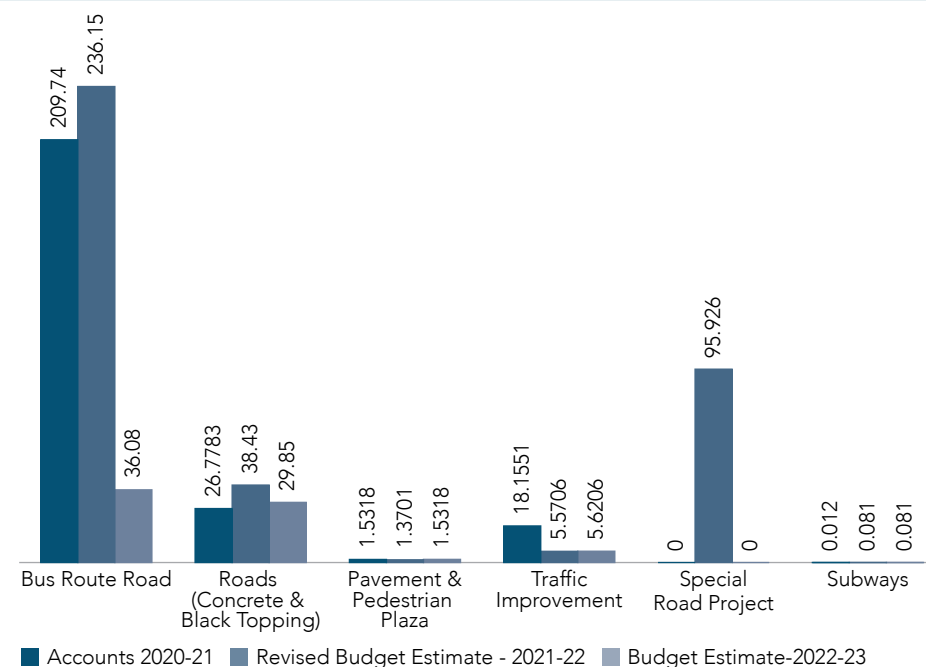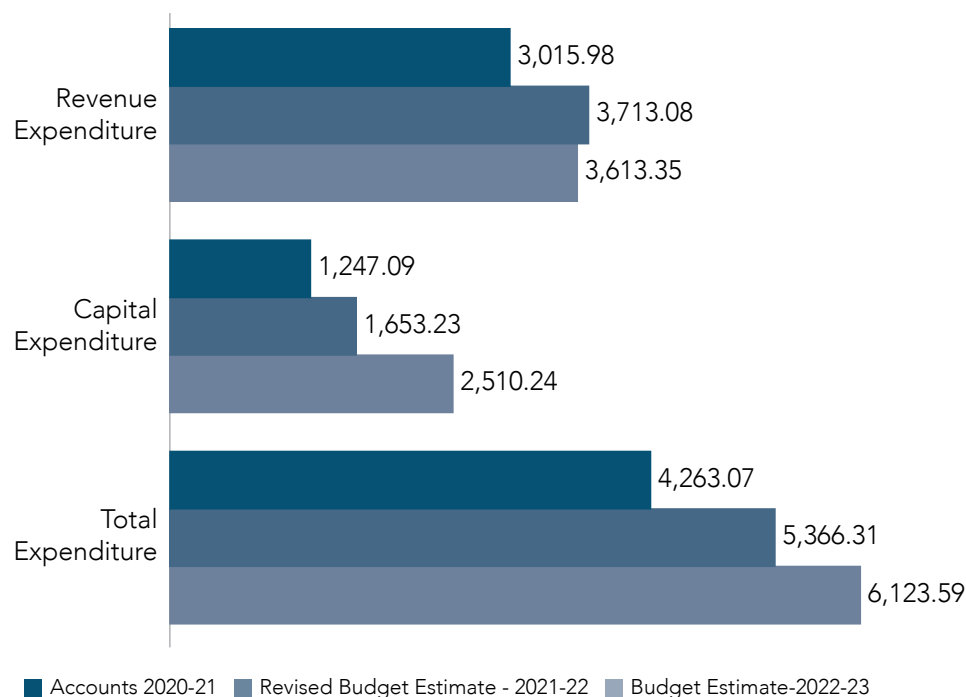|	
Cash	90.65%
Credit/ Debit Card	0%
Pass	0%
UPI/ Mobile app	9.35%
Free	0%

- Chennai stands out in the cluster with a low percentage of respondents (**77.86%**) paying for public transport in cash, second only to Hyderabad (**75.39%**). At the same time, the use of Unified Payments Interface (UPI) for public transport payments in Chennai is higher than the cluster average (**17.61%** compared to **14.21%**), although it falls behind Hyderabad (**24.66%**). The percentage of respondents paying for public transport using a pass is however the lowest in the cluster at **4.52%**, 1.58 percentage points lower than the cluster average of 6.10%.

- In Chennai, **90.65%** of respondents reported paying for Intermediate Public Transport (IPT) modes in cash, which is lower than the cluster average of **96.22%**. Mumbai has an even lower percentage, with only **90.22%** of respondents paying for IPT modes in cash. Similarly, **9.35%** of respondents in Chennai use Unified Payments Interface (UPI) for paying for IPT modes, surpassing the cluster average of **8.66%**. However, Chennai lags far behind Hyderabad, where **34.13%** of respondents use UPI for IPT payments.

INVESTMENT IN CITY

Financial resources play a vital role in development and maintenance of a sustainable, seamless, efficient and inclusive mobility system. Here is a look at the budgets for Chennai city with particular reference to mobility spends:

Greater Chennai Municipal Budget 2022-23 details

Revenue Expenditure
- 3,015.98
- 3,713.08
- 3,613.35

Capital Expenditure
- 1,247.09
- 1,653.23
- 2,510.24

Total Expenditure
- 4,263.07
- 5,366.31
- 6,123.59

■ Accounts 2020-21 ■ Revised Budget Estimate - 2021-22 ■ Budget Estimate-2022-23

Source: Greater Chennai Corporation, n.d.

	Bus Route Road	Roads (Concrete & Black Topping)	Pavement & Pedestrian Plaza	Traffic Improvement	Special Road Project	Subways
Accounts 2020-21	209.74	26.7783	1.5318	18.1551	0	0.012
Revised Budget Estimate - 2021-22	236.15	38.43	1.3701	5.5706	95.926	0.081
Budget Estimate-2022-23	36.08	29.85	1.5318	5.6206	0	0.081

■ Accounts 2020-21 ■ Revised Budget Estimate - 2021-22 ■ Budget Estimate-2022-23

- The estimated total budget of the Greater Chennai Corporation (GCC) for 2022-23 has increased by over **14%** or INR 757.28 crores compared to the revised budget of 2021-22[8]. The estimated budget for capital expenditure has seen a significant increase of **51.84%** (INR 8,57.01 crore).
- In the revised estimate for 2020-21, the revenue and capital expenditure for the Greater Chennai Corporation amounted to INR 5716.49 crores, resulting in a per capita budget of INR 6,704.58 for the Chennai Municipal Corporation.

[8]In addition to GCC, various public transport service providers such as the Metropolitan Transport Corporation (Chennai), Chennai Metro Rail Limited, Southern Railways, Chennai Traffic Police, and CMDA also allocate substantial financial and human resources to enhance transportation in the city.

IMPROVEMENT AREAS

There are multiple causes affecting mobility, as it should be for something as encompassing. If infrastructure sets the pace, technological advancements and behavioural changes ensure that the journey to sustainable and efficient mobility systems is seamless. The Ease of Moving Index is an attempt to quantify, measure and establish these correlations, and prompt interventions which serve the larger goals of any city. Universal goals cannot be achieved in isolation. The inferences encapsulated in the study aim to highlight the opportunities ahead, and assist policy makers towards a data-driven decision-making process. The key responsibility areas and their respective improvement areas have been furnished below..

We urge all stakeholders to join us on this journey of improved and enhanced mobility across the country through various engagement channels.

Key responsibility areas and improvement areas, along with the agencies responsible for intervention.

Active and shared mobility

Improvement Areas
- Vehicle ownership in Chennai is considerably high and continues to show an upward trend, reflecting a low preference for active and shared mobility. Efforts could be made to arrest the growth, and promote more sustainable modes, such as active and shared mobility, and public transport.

Responsible Agency
RTO

First-mile/ last-mile connectivity

Improvement Areas
- Improving physical integration at multi-modal hubs in the city, including strengthening first- and last-mile connectivity at transit hubs, would help make the public transport in Chennai more seamless and efficient.
- Park-and ride-facilities in Chennai are relatively low. Additionally, special efforts can be made to ensure bicycle parking.
- Chennai is the only mega city that does not have a parking policy. Parking policy can be used as a lever to encourage adoption of public transport.

Responsible Agency
Chennai Unified Metropolitan Transport Authority
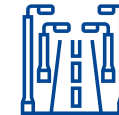
Road safety infrastructure

Improvement Areas
- Safe at-grade crossing and grade separator interventions for pedestrians and cycles, especially on major roads, can help improve road safety.
- Well-lit and well-designed footpaths will encourage walking and keep pedestrians safe.
- Well-lit roads will help curtail road crashes.

Responsible Agency
Greater Chennai Corporation (GCC)

Budgetary spending

Improvement Areas
- Per capita budget in Chennai has room for improvement.

Responsible Agency
Greater Chennai Corporation (GCC)

Decarbonisation

Improvement Areas
- Improving the presence of electric buses would help Chennai meet its air quality standards.

Responsible Agency
Metropolitan Transport Corporation (Chennai)

Network of bus system

Improvement Areas
- Coverage and availability of buses can be improved by strategic investment.
- Increased digital presence of MTC will help MTC expand its footprint
- Encouraging cashless payments and passes would make buses future-ready.
- More low-floor buses can be procured to enhance accessibility for persons with disability.
- There's scope for improvement in public transport affordability.
- There's room for improvement in comprehensible, accessible, and real-time information about public transport.
- Respondent perception also reveals a need for improving the cleanliness of buses.

Responsible Agency
Metropolitan Transport Corporation (Chennai)

Accessibility

Improvement Areas
- Assistance for persons with disability to make the metro accessible.
- Access to railway stations, and level boarding will improve access for persons with disability.

Responsible Agency
Chennai Metro Rail Corporation Limited
Suburban Train

The strategic interventions mentioned above need to be prioritised to improve the mobility scenario in the city. OMI Foundation will be keen to support the civic administration in creating pathways for implementation, demonstration of pilot and collaboration to improve Chennai's mobility landscape.

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