

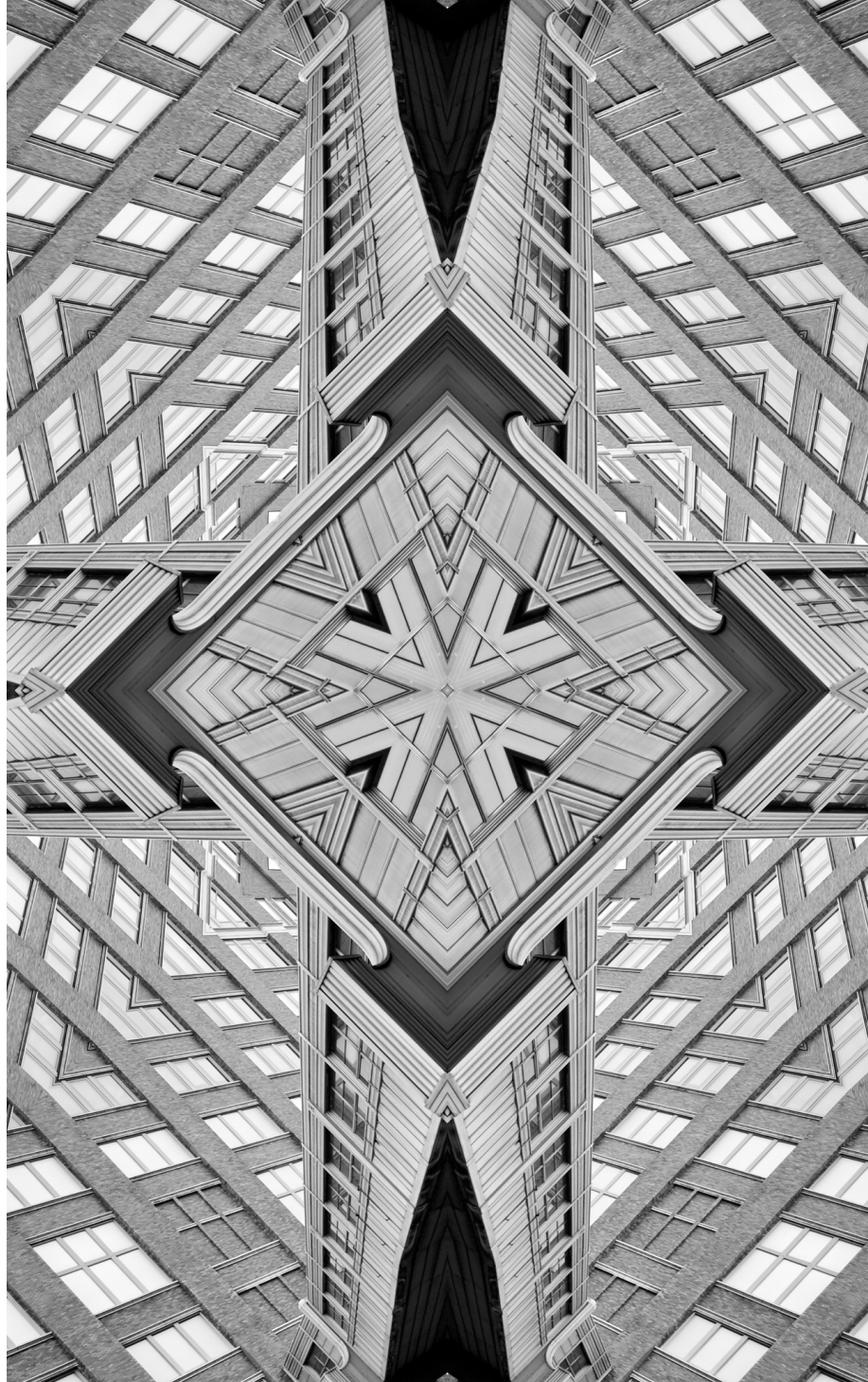
# Issue

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# Brief

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# Urban India's Parking Woes: An Overview

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## Abstract

Vehicular congestion and insufficient parking facilities are significant emerging challenges for India's mega and metropolitan cities, severely impairing mobility. Although curtailed by constitutional mandates, many Indian cities are seeking to resolve the issue through parking policies, focusing on regulations, pricing as a management tool, new technologies, and off-street parking provisions. This brief assesses the parking policies of Ahmedabad, Bengaluru, Delhi, Pune, and Mumbai, and discusses the likely obstacles and potential solutions to alleviate the situation.

India's urbanisation is shaped by its overwhelming dependence on its metropolitan cities, home to 42.3 percent of its urban population.<sup>1</sup> This has resulted in high human density in over one million cities, averaging 20,713 persons per sq. km.<sup>2</sup> As urban populations grow and city economies expand, there has been a rise in the number of motor vehicles, primarily cars and two-wheelers, in urban areas. For instance, in 2020, Delhi had 11.89 million registered motor vehicles, Bengaluru had 9.64 million, Chennai had 6.35 million, Ahmedabad had 4.57 million, Mumbai had 3.88 million, Hyderabad had 3.24 million, and Jaipur had 3.17 million.<sup>3</sup> This has also resulted in congestion because much of the road is used to park vehicles. As traffic congestion increases, obstructing mobility in cities, commuters spend more and more time on their daily commutes. This creates frustration from a sense of powerlessness over the situation and adverse economic and social consequences.<sup>4</sup> While such situations have typically prompted public anger at the state of traffic in many cities, some citizens have also attempted to address the issue through public discussions. For instance, over the years, citizens' meetings on traffic-related challenges and solutions have been held in Vadodara (Gujarat),<sup>5</sup> Ludhiana (Punjab),<sup>6</sup> Pune (Maharashtra),<sup>7</sup> and Mangaluru<sup>8</sup> and Bengaluru<sup>9</sup> (Karnataka).

Matters related to motor vehicles in India come under the purview of both the Centre and the states (and not city governments). Although vehicular congestion is an emerging problem for India's cities, the automobile industry is likely to remain unrestricted as, given its substantial economic and employment potential, it is vital for India.<sup>10</sup> At the beginning of 2023, India surpassed Japan to become the third-largest automobile market in the world, logging 4.25 million new car sales.<sup>11</sup> In 2021, the sector accounted for 8 percent of India's total exports, 7.1 percent of its GDP, and generated 37 million jobs.<sup>12</sup> By 2023, India was also the world's largest manufacturer of two-wheelers, the third-largest manufacturer of heavy trucks, and the fourth-largest car manufacturer.<sup>13</sup> The automobile sector is also valuable for India's states, with motor vehicle tax being one of their most healthy revenue sources. For instance, in 2023, the Delhi government collected INR 2,9160 mn, registering a 17 percent year-on-year growth.<sup>14</sup> At the same time, there also appears to be no thinking towards imposing a cap on the number of cars in a city. As such, cities now have no alternative but to prepare to tackle the increasing traffic congestors operating within their geographical limits. Several cities have begun considering parking organisation as a tool to manage the worsening situations. This brief assesses the parking policy documents of Ahmedabad, Bengaluru, Delhi, Pune, and Mumbai, and discusses the likely obstacles and potential solutions to alleviating the situation.

# Parking Policies in Indian Cities

Ahmedabad, Bengaluru, Delhi, Pune, and Mumbai are five of India's 10 largest cities. Four of these cities feature in the 2023 TomTom Traffic Index, which evaluates cities around the world by their average travel time, fuel costs, and CO2 emissions<sup>a</sup>—Bengaluru and Pune are the sixth- and seventh-most congested cities globally (and the first and second in Asia), respectively, while New Delhi ranks 44 globally (and 12 in Asia), and Mumbai ranks 54 (14 in Asia).<sup>15</sup> According to the index, the average traffic speed is 18 km per hour in Bengaluru, 19 km per hour in Pune, 24 km per hour in Delhi, and 23 km per hour in Mumbai.<sup>16</sup> Although Ahmedabad does not figure in the TomTom Index, the city's traffic situation is equally problematic. According to a survey conducted by CEPT University's Centre of Excellence in Urban Transport, peak travel speed in Ahmedabad was 20-22 km per hour.<sup>17</sup> As such, the city administrations' parking policies must be viewed—and implemented—as viable solutions to their traffic issues.

- **Ahmedabad**

Ahmedabad is India's seventh largest metropolis, with a population of 5.59 million (as per the 2011 Census).<sup>18</sup> The city has a public bus service (Ahmedabad Municipal Transport Service), a bus rapid transit system, and a metro rail. In 2021, it had 3.9 million vehicles, 74.9 percent of which were two-wheelers, 4.3 percent three-wheelers, and 17.8 percent four-wheelers.<sup>19</sup> In 2023, the Ahmedabad Municipal Corporation (AMC) notified its 'Revised Parking Policy 2023 Ahmedabad City'.<sup>20</sup> According to the parking policy document, the city has inadequate on-street and off-street public parking facilities, available parking spaces are underutilised, parking for private buses is unorganised, and logistic facilities in and around the city are insufficient.<sup>21</sup> Ahmedabad currently has parking provisions for 5,453 cars and 26,758 two-wheelers.<sup>22</sup> Parking in the city is generally free, and on-street parking is not clearly demarcated.

The new policy proposes making a shift from free to paid parking. The AMC aims to develop and manage parking based on functional quality, operational excellence, citizen satisfaction, and sustainable financial performance in line with city planning policies.<sup>23</sup> The objectives, as stated in the parking policy document, are to discourage the use of personal vehicles, give preference to public and non-motorised vehicles, fix parking charges that reflect the cost of land, encourage short-term parking to achieve a high turnover, manage parking

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a In 2023, 387 cities across 55 countries on six continents were evaluated.

# Parking Policies in Indian Cities

space through the use of smart technologies, and prepare parking bylaws and area-level parking plans. The policy stipulates the establishment of a separate Traffic and Parking Cell.<sup>24</sup>

- **Bengaluru**

Bengaluru is India's third largest city, with a population of 8.4 million (as per the 2011 Census).<sup>25</sup> As of 2020, it had 9.4 million vehicles,<sup>26</sup> about 67 percent of which were two-wheelers and 21 percent were cars.<sup>27</sup> Parking is unregulated across the city, and on-street parking is mostly free but not well-demarcated. Bengaluru's 'Parking Policy 2.0', announced in December 2020,<sup>28</sup> proposed a shift from chaotic to well-organised parking, from free to paid parking, from government-driven to market-driven parking supply, and from the passive and weak enforcement of parking regulations to the active management of parking demand.<sup>29</sup> The move towards market-driven parking aims to accelerate the development of off-street parking via private market sources.<sup>30</sup> The policy also proposed preparing area parking plans.<sup>31</sup> The zonal joint commissioner of the Bruhat Bengaluru Mahanagara Palike, the city's administrative body, will oversee parking through parking space management agencies.<sup>32</sup>

- **Delhi**

The National Capital Territory of Delhi is home to 16.8 million people (as per the 2011 Census) and had 13.4 million registered vehicles in 2022. In September 2019, the government notified the 'Delhi Maintenance and Management of Parking Rules 2019'.<sup>33</sup> The document stipulated that an apex monitoring committee review the implementation and compliance with the rules.<sup>34</sup> It also mandated the preparation of area parking plans with due consideration given to pedestrians, cyclists, buses (including school buses), the metro, emergency vehicles, differently-abled access and parking facilities, vendor zones, pick-up and drop spots for cars, and overnight parking for transport vehicles.<sup>35</sup> Notably, the document states that the plans must not impinge on the free movement of traffic. The apex committee should determine a base parking fee based on the recommendations of the base parking fee committee.<sup>36</sup> The civic agencies should determine variations in parking fees. A dynamic pricing mechanism should be implemented, and on-street parking should be charged at least twice as much as off-street parking.<sup>37</sup>

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- **Pune**

Pune is India's seventh largest city, with a population of 3.11 million (as per the 2011 Census).<sup>38</sup> In 2017, 23 villages were subsumed into the city limits, followed by 11 more in 2021, adding about one million more to the city's population.<sup>39</sup> In 2022, the city had 3.2 million two-wheelers, 88,674 auto rickshaws, 36,946 taxi cabs, and 753,000 cars.<sup>40</sup> The city's parking policy was released in 2016.<sup>41</sup> The guiding principles of the policy are to move people and vehicles, make provisions for the parking of bicycles and intermediate modes of transport, reduce the use of personal modes of transport, encourage the use of sustainable transportation modes such as walking and cycling, rationalise parking spaces, price parking to encourage the efficient use of parking spaces, and have a revenue-generating parking management system.<sup>42</sup> The policy aimed to shift 80 percent of motorised trips to public transport by 2031, achieve a 50 percent reduction in total vehicle kilometres travelled by the same year, and transform at least 10 percent of on-street parking spaces to public open spaces. It also proposed parking districts and new technologies for management.<sup>43</sup>

- **Mumbai**

Mumbai, India's largest city, is one of the densest cities in the world<sup>44</sup> ((with a population of 12.44 million, as per the 2011 Census) and also has the country's highest vehicle density.<sup>45</sup> In 2020, Mumbai had 2.35 million two-wheelers, 220,000 three-wheelers, 1.13 million cars, and 3.95 million heavy vehicles.<sup>46</sup> At present, almost all on-street parking is loosely regulated and mostly free.<sup>47</sup> The city's Comprehensive Mobility Plan, released in 2016, calculated a parking demand of 2,84,575 equivalent car space (ECS).<sup>48</sup> However, in 2022, the city was estimated to have substantially less available parking capacity—39,501 ECS with the Brihanmumbai Municipal Corporation (BMC) and about 26,815 ECS with government, parastatals, and commercial establishments.<sup>49</sup>

In 2022, the BMC released a parking policy for the city, but it is yet to be fully operational.<sup>b</sup> The policy proposes that the Mumbai Parking Authority (MPA) will be responsible for parking in the city<sup>c</sup> under the aegis of the BMC, but with an independent apex body comprising representatives from all government

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b This is perhaps attributable to the delay in the polls to elect municipal corporators (the elections were scheduled for 2023) and the absence of an elected local body. This situation has adversely affected decision-making, with certain approvals from the state government still needed before the parking policy can become operational.

c To plan, regulate, and manage all on- and off-street parking and public parking places under the physical jurisdiction of Greater Mumbai.

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departments that deal with traffic and transport. The MPA would also have a chief executive officer and other functionaries to oversee its day-to-day affairs.<sup>d</sup> The MPA will need to create and develop the Mumbai parking pool (on- and off-street parking spaces managed by the body),<sup>e, 50</sup> organise and manage on- and off-street parking supply and demand and parking pricing, and manage abandoned and scrapped vehicles. The MPA will digitise parking infrastructure, allowing citizens to reserve parking spots in advance electronically.<sup>51</sup> The MPA will also need to focus on reducing traffic congestion on the roads, especially during peak hours, through staggered timings, work from home, and other innovations.<sup>52</sup>

The parking policies of all five cities appear to agree on certain significant aspects. They are unanimous that parking cannot be free and should be charged wherever public space is utilised since the concept of ‘free parking’ is not sustainable. There is also broad agreement that off-street parking must be optimised, and on-street parking should be rationalised (restricted and arranged to advance traffic flow) so that more road space becomes available to moving traffic. Policy aspects related to monitoring and implementation recommend decentralisation (area management, parking zones, and parking districts). The policies also agree that on-street parking must be costlier, and a demand-driven pricing escalation formula should be determined. All five policies favour using digital technologies. However, using and operating such technologies will require external expertise (from tech companies/personnel) since municipal corporations may not appear to have relevant resources to handle such infrastructure.

A significant way in which the five cities are trying to manage parking demand is through pricing. According to some transportation experts, reducing the market price for parking inflates parking demand, which is used to set minimum parking requirements.<sup>53</sup> Eliminating minimum parking requirements will lower the cost of urban development, improve urban design, reduce automobile dependency, and restrain urban sprawl.<sup>54</sup> Several cities worldwide, such as Singapore, London (the UK), Curitiba (Brazil), and Hong Kong, have successfully used the pricing tools.<sup>55</sup> In Singapore, for instance, the

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d It is closely modelled on the Brihanmumbai Electric Supply and Transport Undertaking. While it is placed under the BMC umbrella, it will have autonomy in its day-to-day operations and will be led by an independent executive. The MPA has a basis in the city’s Developmental Control and Promotion Regulations 2034.

e To encourage all parking facilities to join the pool, the policy proposes that all entities with such features (such as government agencies or commercial and residential societies) determine their own terms and conditions and pricing. The idea is to optimise the availability of parking through the efficient utilisation of all parking available in the city while making it easy for commuters to reserve parking spots through an app.

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Housing Development Board and Urban Redevelopment Authority manage parking services such as season parking and the purchase of parking coupons.<sup>56</sup> The city enables the selection of real-time parking through a parking guidance system. Parking rates are determined area-wise, day-wise, and timewise, and can be chargeable per minute or hour. The charges are substantial and reflect components such as land cost.<sup>57</sup>

Similar strategies are being tried in Indian cities such as Bengaluru,<sup>58</sup> Srinagar,<sup>59</sup> and New Delhi.<sup>60</sup> These cities are experimenting with parking management on selected streets by hiring a contractor and splitting the revenue between the corporation, smart-city office, traffic police, and the contractor through a detailed policy. Proper pricing has the added advantage of generating substantial revenue for the local body, which can partially offset the cost of creating sustainable transport infrastructure. Furthermore, these cities have divided their territories into areas and created area-level parking management plans so each area can attempt to resolve parking issues separately. Parking management can be assisted by complimentary planning/design techniques such as efficient street design,<sup>f</sup> identifying the roles and responsibilities of different government agencies through well-drafted policies or government resolutions, and deploying on-street and off-street parking regulations that use a progressive planning approach by moving the majority of on-street parking to off-street parking. These cities have also tried specific methods that can indirectly improve the parking situation, such as a more significant effort at pedestrianisation and improving walkability, cycling infrastructure, and public transport by incentivising people to make short trips on foot or take public transport rather than use private motor vehicles.

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f Street design comprise, inter alia, footpaths, travel lanes and transit stops, all planned and delineated in such a manner that they together optimise accessibility, mobility, safety, and aesthetics.



# Challenges to Resolving Cities' Parking Woes

Indian constitutional mandates are a critical impediment for cities where parking issues are concerned. For instance, while national highways are part of the Union List,<sup>61</sup> road transport is a state subject,<sup>62</sup> while municipal roads under state statutes are under the purview of the municipal body. However, urban local bodies (ULBs) are created and governed by the state,<sup>63</sup> and so the states can dictate local policies or amend policies mandated by the ULBs. This allows little room for cities to take any initiative.<sup>8</sup>

Additionally, there are other institutional constraints at the state level. The police handle certain aspects while others are within the realm of the commissionerate of transport, constraining municipal corporations. For instance, the Mumbai Municipal Corporation Act covers parking in Section 326 A and Section 326 B. Section 326 A empowers the municipal commissioner, in consultation with the police commissioner, to create parking places and charge parking fees with the corporation's approval. Section 326 B allows the introduction of traffic demand measures. The Act, therefore, does not provide the comprehensive statutory framework that would enable the municipal corporation to perform all its parking functions. This issue is not a concern in most cities of the developed world where wide authority is vested in the mayor, including the supervision of the local police. It is for this reason that Mumbai has proposed that the MPA should be vested with all powers related to parking so that the body can perform all potential parking functions. However, this will require statutory amendment. The powers for such an amendment lie with the state. The BMC has prepared such a proposal and submitted it to the state government, in line with international practice and management logic.<sup>64</sup>

A further issue is that road transport and parking do not fall under the purview of ULBs. The 74th Amendment added Schedule 12 to the Indian Constitution, listing 18 municipal functions the states were urged to adopt. The list did not include transport, public transport, or parking. The Mumbai Municipal Corporation Act (MMC) of 1888, one of India's oldest municipal laws and on which many states have based their statutes, does not include parking

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<sup>8</sup> The Seventh Schedule of the Constitution of India comprises, inter alia, a Union List and a State List. The Union List allocates 97 subjects that fall in the domain of the Parliament for legislation, with the union government having exclusive power regarding the cited subjects. The State List details a total of 66 subjects that fall in the domain of the state legislatures and on which it can make laws. These are the ones on which state legislatures can make laws. Essentially, the state governments have exclusive power regarding the subjects in this list. Municipal governance as part of local governance is allocated to the states and forms part of the State List.

# Challenges to Resolving Cities' Parking Woes

in the list of obligatory duties that ULBs are mandated to perform. The MMC's list of discretionary duties<sup>h</sup> mentions the construction, purchase, organisation, maintenance, extension, and management of tramways or mechanically propelled facilities for the conveyances of the public. Based on this provision, Chapter 16 A and Sections 460 A to 460 PPP were probably inserted in the MMC Act (enabling the creation of the Brihanmumbai Electric Supply and Transport Undertaking). However, the MMC only includes two sections (Sections 326 A and 326 B) on parking.

Cities must also contend with challenges related to land use. Most Indian cities have economised the provision of land for roads. In Pune, for instance, 62 percent of the total road network was narrower than nine metres.<sup>65</sup> Additionally, there were inadequate dedicated service roads along highways. Only 9.29 percent of the city's land was available for transport facilities.<sup>66</sup> Land for earmarked roads, many proposed on private land, are difficult to acquire due to the substantial acquisition costs. For instance, the Maharashtra State Road Development Corporation had asked the state government for INR 6,000 to speed up the land acquisition process for the 136.8 km ring road project in Pune.<sup>67</sup> Similarly, in Bengaluru, it was found that 74 percent of the city's major roads had just two lanes and only 7 percent of roads had six or more lanes.<sup>68</sup> Bengaluru faced a situation similar to Pune's with regard to service roads. Delhi appears to be the only major city in India with a substantial percent of its land available for roads (21 percent).<sup>69</sup> In comparison, many major cities, such as New York, Barcelona, Paris, Amsterdam, Melbourne, and Sydney, have 35 percent of their land under roads in the core city area.<sup>70</sup> Cities with less than 30 percent of their land dedicated to streets will likely have significant congestion problems.<sup>71</sup>

Tackling congestion in Indian cities will also require addressing the issue of street vendors. Cities are now statutorily bound to provide space to street vendors under the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014. Since this mandate is not appropriately woven into city master plans, footpaths and roads often become the venue for street vending.<sup>72</sup> In such a situation, on-street parking becomes a more significant challenge. As an alternative, some cities are considering multistoried off-street

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<sup>h</sup> The MMC Act stipulates two sets of municipal duties/functions. It is incumbent on the corporation to perform and provide for the set of obligatory duties detailed in Section 61 of the Act. On the other hand, the corporation may, in its discretion, fully or partly provide for the discretionary functions. It is logical to infer that the obligatory functions are mandatory, and the corporation may enter the domain of discretionary functions only after it has satisfactorily performed the obligatory functions.


# Challenges to Resolving Cities' Parking Woes

parking facilities.<sup>73</sup> However, finding land for such facilities is difficult, as other civic amenities (such as schools, healthcare facilities, playgrounds, parks, and markets) will be prioritised.

Mounting traffic congestion has also forced some cities to consider underground parking.<sup>74</sup> This enables the use of space below the land without obstructing ongoing overground businesses and activities. For instance, in areas of the city where land costs are higher, it would make better economic sense to arrange underground parking facilities. However, such facilities are expensive and involve high maintenance and operational costs; on average, they are at least twice as costly as surface parking without the addition of land cost.<sup>75</sup> Multistoried underground parking facilities would further escalate the overall cost, given the additional expenses of excavation and the cost of the structural system. However, given the financial fragility of most ULBs, underground parking is not a viable option for most city corporations.

“While national highways are part of the Indian Constitution’s Union List, road transport is a state subject, while municipal roads under state statutes are under the purview of the municipal body. However, urban local bodies (ULBs) are created and governed by the state, and so the states can dictate local policies or amend policies mandated by the ULBs. This allows little room for cities to take any initiative.”

# Conclusion

**A**s traffic congestion mounts across India's cities—and with the country poised for rapid further urbanisation—ensuring the provision and availability of good, adequate, and efficient public transport may discourage the use of personal cars. Accordingly, Ahmedabad, Bengaluru, Pune, Delhi, and Mumbai—among India's largest and most congested cities—have invested extensively in public transport. Indeed, all five cities are currently expanding their metro rail services. However, some of the data emanating from the TomTom Index is discouraging.<sup>76</sup> The surveyed Indian cities seem to have had little positive impact from expanding public transport in terms of reducing traffic congestion. To be sure, good public transportation does not necessarily translate into substantially reduced traffic congestion. To improve the congestion situation, cities must couple efforts to improve their public transport systems with activities targeting the functional, psychological, and cultural values of owning and using private cars.<sup>77</sup> 

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