

Suggestions for Minimizing Traffic Congestion in Cities

UMESH CHANDRA KULSHRESTHA

School of Environmental Sciences Jawaharlal Nehru University New Delhi, India.



Article History

Published on: 03 September 2024

It has been realized that vehicular population increase is creating chaos on the roads increasing our travel time, fuel used and stress. The number of vehicles in Delhi in 2000 were 3.3. millions which is increased to 12 million in 2020.¹ This is around 263% increase in Delhi in 20 years. It is more than double percent increase in human population. In 2000 human population was 13.8 million which is increased to 30.3 million in 2020 having a 119.6% increase.² Similarly, other cities are experiencing traffic congestion due to drastic increase in vehicles plying on roads. Certain road sections are nightmares for travellers. In spite of bye passes, overbridges, metro rails, underpasses, traffic jams are very common in big as well small towns. These traffic jams are primarily due to overloading of vehicles surpassing the carrying capacity of roads. In some areas it may be due to encroachment of roads and footpaths or due to wrong handling of traffic at the signals when signal lights fail or due to rickshaws and bikes. Some times wrong side drive and parking also result in traffic jams. This article suggests some necessary steps to get rid of traffic jam menace every day.


Need for Capping Vehicle Numbers

Both road and parking capacities of most of the cities are overloaded. This feedback suggests that there is great need to cap the number of vehicles. There is need of a vehicle quota system for new vehicle registrations to control the number of new vehicles on the road. Given the substantial increase in both vehicular and human populations, along with the corresponding rise in petroleum consumption, there is a pressing need to cap the number of vehicles in Delhi and other cities. At present, there is capping of 100000 Three-Seater Autorickshaws (TSR) in Delhi which was imposed in 2011 by the honourable supreme court. Recently, M/s Bajaj filed a plea to remove this autorickshaws capping but was rejected by the court in 2024 which is a good step to reduce number of autorickshaws and reduce traffic congestion for public convenience and environmental protection.³ In fact, before capping policy we need to educate people for their inconvenience

CONTACT Umesh Chandra Kulshrestha ✉ umeshkulshrestha@gmail.com 📍 School of Environmental Sciences Jawaharlal Nehru University New Delhi, India.



© 2024 The Author(s). Published by Enviro Research Publishers.

This is an  Open Access article licensed under a Creative Commons license: Attribution 4.0 International (CC-BY).

Doi: <https://dx.doi.org/10.12944/CWE.19.2.1>

arising due to traffic jams and damaging environment. Otherwise, capping rule implementation might be opposed as it happened recently in Chandigarh in 2023.⁴ The Chandigarh government ordered capping of registration for non-EVs in 2023 but due to public resistance, it was rolled back.

Congestion Pricing

Vehicles entering congested areas need to be charged. Implementation of congestion pricing in high-traffic areas will discourage the use of private vehicles. Also, this will add to revenue generation which can be utilized to fund public transport projects. Cities like Singapore, London, SanDiego, Milan and Stockholm have a system of congestion charges for vehicles entering in the defined congestion zones.⁵

Providing Parking Space in Market Areas

Generally, unplanned shopping areas lack era marked parking. People are parking their vehicles in front of the shops encroaching the road space which creates congestion. This problem can be solved by earmarking parking spaces in such areas. The Delhi government has new guidelines to address parking issues, considering user needs including pedestrians and emergency vehicles under Parking Management Area Plan 2017.⁶ Plan has provisions for "peak" and "non-peak" parking prices and hiking the parking price during the implementation of Graded Response Action Plan (GRAP).

Use of Efficient Traffic Signal System

Generally, it is seen that traffic signal failures are the major cause of long jams. Hence, we need to develop an efficient signal technology with the help of AI. Firstly, to ensure non-failures of signal lights and secondly its functioning through inter-connections with other associated signals to cognize switch over depending upon the density at a particular signal.

Decentralization of Government Offices

Generally, travelling to offices is a major cause of traffic congestion. Private sector offices are already scattered within urban and semiurban areas but government offices are mostly centralized in the city which need to be decentralized spreading across the city corners. Such arrangements will be helpful in traffic congestion.

Enhanced Public Transportation

Increase the number and frequency of buses and metro services to make public transport more reliable and accessible.⁷ Government and private sectors need to invest more in public transport and related subsidies and incentives. Of course, this will need a strong public security assurance from the governments.

Incentives for using Public Transport

In order to encourage people to use more and more public transport, people need to be incentivised through subsidies. Also, schemes can be introduced for office workers allowing them to earn public transport scores and get incentives in their promotions and taxes.

Construction of Elevated Roads

Similar to elevated metro rails, roads can also be constructed passing over the land bypassing surface hurdles. This will reduce the traffic congestion as well as the time of travel. Such arrangement will also protect the environment. Elevated roads are very effective during water logging and rainy season.

Multi-Tiers Roads

Due to limited space in urban areas, construction of multi-layer roads will help in reducing congestion. Road above road design can have parking facilities too. Such roads are helpful in increasing road capacity in a horizontal space. However, there is no guarantee that the ends of the multilayered roads will be traffic congestion free. Therefore, design of such roads needs to address this issue of converging traffic at the ends of the roads.

Rope Ways

In order to shorten the road travelling and reducing congestion, it is possible to construct rope ways at several locations especially in hilly areas. By providing rope ways at major points in hills, we are going to reduce traffic on roads. This will also be used as an alternate route during landslides which are very common during rainy seasons. Rope ways can also be planned in plains by elevating towers at the end points taking all safety precautions.

Penalizing for Wrong Side Vehicles

Wrong side traffic on city roads and highways is a menace in India. This needs to be managed for avoiding traffic jams. Using suitable technology, such vehicles should be fined by capturing their vehicle number automatically. This will need additional infrastructure installing cameras and processing for recorded data for further implementation.

Penalizing for on Road Parked Vehicles

Sometimes vehicles are parked on roads especially in the traditional market areas which are parts of. This results in heavy traffic jams.

Flying Cars

Use of flying cars is another option for rapid travel. This needs a new infrastructure for operation and navigation. Flying cars are going to be reality soon.⁸ Commercially available flying cars are ready for operational signal from the state. Some flying cars will need run way to take off and some which are vertical take off driven will not need runways. The estimated cost of a flying car will be around US\$ 500000:- which is not very high for some of the Indian people. Hence, soon the flying cars will also create traffic congestion in air and land.

Drone Shuttles

For short distance individual travel e.g. food delivery, drone shuttles will serve the purpose but similar to flying cars, drone shuttle operations will also need a new infrastructure for navigation and traffic control.

Need of Public Awareness

Apart from above issues, the traffic congestion is very much related with public awareness. Hence, there is need to spread awareness about how to drive vehicles, how to park and where to park the vehicles. People need to be educated for not driving on wrong side, parking at right place and avoid private movements during peak office hours, avoid congested routes, use public transport, not to encroach footpaths, if going by car, shop in commercial complexes and malls etc.

References

1. CEIC. 2024. India Number of Registered Motor Vehicles: *NCT of Delhi*. <https://www.ceicdata.com/en/india/number-of-registered-motor-vehicles-nct-of-delhi>. Accessed on August 31, 2024.
2. Delhi, India Population 2024. <https://worldpopulationreview.com/cities/india/delhi>. Accessed on August 31, 2024.
3. SC Dismisses Bajaj Auto's Plea To Remove Cap On Rickshaws In NCR. <https://www.verdictum.in/court-updates/supreme-court/mc-mehta-v-union-of-india-bajaj-auto-cap-one-lac-tsr-delhi-ncr-environment-commercial-gain-permit-to-auto-rickshaws-1543511>. Accessed on August 31, 2024.
4. Chandigarh rolls back capping on registration of fuel-based vehicles. <https://indianexpress.com/article/cities/chandigarh/chandigarh-rolls-back-capping-on-registration-of-fuel-based-vehicles-9039447/>. Accessed on August 31, 2024.
5. Cities with congestion pricing. 2024. <https://www.smartcitiesdive.com/ex/sustainablecitiescollective/five-cities-congestion-pricing/28437/>. Accessed on August 31, 2024.

6. Parking Management Area Plan for National Capital Territory of Delhi. https://transport.delhi.gov.in/sites/default/files/circulars-orders/draft_guidelines_parking_management_area_plan.pdf. Accessed on August 31, 2024.
7. Verma K. and Kulshrestha U. 2018. Feasible Mitigation Options for Air Pollution and Traffic Congestion in Metro Cities. *J Indian Geophysical Union*, 22(2), 212-218.
8. IOT, 2023. Flying Car Company Plans Deliveries in 2024; Showroom Open. <https://www.iotworldtoday.com/flying-vehicles/flying-car-company-plans-deliveries-in-2024-showroom-open#close-modal>, accessed on August 30, 2024.