

# Development of Mass Rapid Transit System- Necessity of Lucknow City

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**Abstract** - A core region exists in almost every Indian city. The core areas are frequently densely populated, crowded locations with limited open space. They have a high population density and are also tied to the city's historical past. These core districts are deteriorating for a variety of causes, and this deterioration is now presenting a danger to the cities' heritage value. The fast-changing lifestyle of the residents of the region, changes in the economics of individuals living in core areas, neglect by local developing authorities, and a lack of connectivity with newly built sections of the city are only a few of the reasons for this deterioration. The heritage zone frequently encircles the core portions of cities, separating them from the newly constructed regions. The clogged roadways that link the city's key districts make them inaccessible to the general public.

To maintain the rich legacy of such locations for future generations, there is a great need to connect the heritage core regions with the main metropolis. The study article aims to find a solution for the regeneration and conservation of core regions using mass transportation fast systems.

**Key Words:** Mass Rapid System, Lucknow, public transportation. Urban Area.

## 1. INTRODUCTION

India is a country with a history dating back over 7,000 years. India has several cities that are among the country's oldest. When there were no motorised vehicles on the land, these antique cities were built. India has grown in practically every industry in the last several years. The government's liberalisation programme has had a good impact on the country's economic situation. People's lifestyles have begun to change at a rapid pace as their economic circumstances have improved. Today, the country's ever-increasing population poses a significant transportation burden. In the last three decades, a country that was formerly famed for its agricultural dominance has begun to see increasing rural-to-urban migration. The size of urban centres is growing, which is hurting the density of the core portions of practically all of the country's cities. The country is currently at a fork in the road, with a rich cultural past on one hand and the prospect of future development on the other owing to economic growth. People are relocating out of the core regions as a result of economic and technological growth, and existing land uses are being changed into inaccessible commercial districts. We discover that historic residential settlements are being turned into wholesale commercial centres in practically

all cities. This change in land use and mutilation of residential clusters in core regions affects not only the architectural heritage but also the intangible cultural legacy of these core places, which is linked to the people who live there. The absence of functioning public transportation infrastructure has made it difficult to link the city's core districts with newly built neighbourhoods. The striking contrast between newly built districts and neglected city core parts, clogged roadways and deteriorating core areas, all have a significant impact on the tourist business.

### 1.1. Vehicular Traffic Scenario In India

The Ministry of Urban Development, the Government of India's prediction for the next few years shows a startling increase in the number of motor vehicles in India.

With the expanding number of cars in Lucknow and across the country, it's more vital than ever to assess the current situation in terms of road traffic carrying capacity in the coming years. In reality, practically every city in India with a population of more than a million people now has a severe transportation challenge. The rate of population increase in metropolitan regions, as well as continual migration from rural to urban areas, is exacerbating the situation. Due to rising urbanisation, population expansion, and economic development, practically all Indian cities will confront a serious public transportation crisis.

According to the report, residents living in Indian cities' urban districts have seen a significant increase in their economic standing. These economic changes have not gone unnoticed in the heart of the city. According to polls, the number of motorised cars possessed by persons living in cities has increased by a factor of ten. The percentage increase in the road network owing to restricted carriageways in cities has lagged far behind the pace of expansion in the population and number of motorised vehicles in recent decades. The growth of the economy in urban areas has been a primary driver of rural-to-urban migration.

India has had rapid economic growth since 1991 when it implemented a liberalisation strategy. Today, the country is one of the world's fastest-expanding economies. As the economy improves, so does people's desire to get behind the wheel. India has not been spared from the phenomenon. Easy auto loans, as well as an increase in the number of small-segment vehicles and two-wheelers on the market, have

enticed city dwellers to purchase at least one vehicle per household. The comparison of population growth, vehicle numbers, and road length in the country reveals a disparity and explains why metropolitan areas are becoming increasingly congested.

### 1.2. About the study: Chowk, Lucknow

Lucknow has expanded across a 25-kilometre radius, with the General Post Office in Hazratganj serving as the focal point (refer to figure-1). The town's primary office and commercial complexes are located in the heart of the city, necessitating daily journeys. There isn't much room to expand the present public transportation system, which includes public buses, three-wheeler tempos, and private automobiles, given the state of the main highways from north to south and east to west. Lucknow's recent growth has resulted in a large increase in transportation demand as well as a major increase in the number of vehicles. However, transportation infrastructure has not kept pace, and as a result, it is woefully inadequate. The City's roadways and parking spaces have grown very crowded, especially during peak hours, since the number of registered vehicles has increased by roughly 40,000 vehicles each year over the last decade.

transportation, which has added to the pressure on the roadways of practically all Indian cities. According to the rites and UP State Transport Department research, the number of automobiles in Lucknow increases by about 16 per cent every year, indicating a significant need for new transportation infrastructure.

The fundamental three characteristics frequently cause an increase in the number of cars on the road. Population expansion, urbanisation, and economic growth are all factors in the development of a location. In India, having a car is also linked to a person's social position. As a result of economic expansion, the number of automobiles on the road has increased dramatically. Almost every car manufacturer in the world is targeting India as a potential market for new and sophisticated automobiles today.

The current situation in the Chowk area shops demonstrates how they have failed to compete with fast-moving new technology and have been pushed out of the rapidly growing city. The narrow lanes, lack of connectivity, and lack of proper public transportation are affecting not only tourism but also commercial activities in the core areas.

According to studies and polls, Chowk is undergoing significant change, not just in terms of material but also intangible history. According to surveys, the core region has undergone an almost 30% alteration. People have begun to migrate out from the city's central sections and into the city's newly constructed areas. People who live in the core areas frequently complain that the core areas are overly crowded and disconnected from newly built neighbourhoods. Due to a paucity of parking spots in the central districts, inhabitants' changing lifestyles sometimes limit their ability to retain four-wheelers.

It's important to remember that the core portions of Indian cities date back to a time when there were no motorised cars on the roadways. As a result, the percentage of roads in the core areas of cities is frequently much lower than the areas left in newly developed areas. Because of the composite environment, the ratio of roadways in the core sections was also lower, and streets were narrower, keeping the streets cooler during the hot summer months.

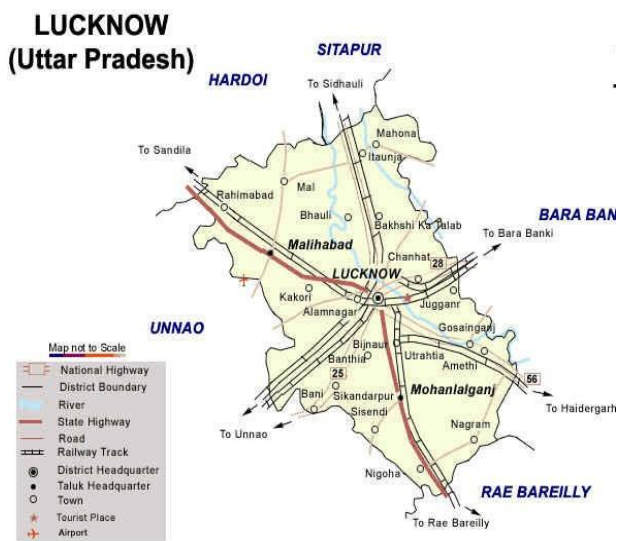


Figure-1: Source: Lucknow.nic.in.

In the previous two decades, the city's population has increased by a factor of ten. The population growth rate of Lucknow, according to the master plan, ranges from 3.51 to 4.37 per cent, with a population density of 67 people per hectare. The city is known for being a low-rise, low-density metropolis with plenty of open space and flora.

In the previous twenty years, the city's population has increased by a factor of ten, a key sign of a country's economic success. This is also attributable to the increased speed with which cities are becoming more urbanised. There has also been a rise in the number of people using public

## 2. CASE STUDY OF DELHI METRO

Delhi is another city with the nearly same type of problems but on a more magnified scale. The present population of Delhi is about 16.75 million with a high rate of rural to urban migration cases and a decadal population growth rate of about 21.15%. The last few decades have seen major congestion on Delhi Roads and a rise in the number of road accidents. Delhi has a mix of areas ranging from the congested Old Delhi to the Lutyens New Delhi. Delhi till the time Delhi Metro Rail Corporation started its functioning, the Delhi roads were always choked with high traffic. Delhi had its historic city centre at Chandni Chowk and the City Centre

for the New Delhi at Connaught Place (Rajiv Chowk). Delhi grew with a multinuclear approach and a much smaller Distt. Centres were developed at Nehru Place, Janakpuri, Saket, Green Park, Laxmi Nagar etc. The distance between all the district centres and the traffic on the connecting roads was one of the reasons why many of these District Centres could not function properly refer to figure-2). Delhi shows an annual growth rate of nearly 7% in the number of vehicles on the roads. Delhi Metro Rail Corporation (DMRC) has tried to solve the problem of Delhi traffic to a great extent. Not only has it connected the old to the new areas of the city but has also brought all the commercial centres closer to each other. Delhi Metro has emerged as a cost-effective solution for urban transportation. The Delhi Metro with its 280 carriages transports 650,000 passengers daily and siphons 1.5 million commuter trips each day off the roads. "The result is 1,650 fewer buses on the roads. One can note that nearly 70% of the revenue of Delhi Metro Rail Corporation comes from operational sources (ticket sales) and the rest from non-operational ones such as advertising and property development. Thus metro has been successful in not only giving a cushion to the increasing traffic of Delhi but has also helped in connecting the old parts of the city to the newer developed ones. DMRC has come as a handy tool to reduce the constant transformation of the residential hamlets of the old Chandni Chowk area thus thereby reducing the number of out-migration cases. Metro has connected the two different areas with the help of technology.



Figure02: Delhi Metro

### 3. SURVEY AT CHAWK

The survey conducted in the core area of chowk was done to understand the extent of transformation that has happened in Chowk and to understand the reasons for the transformation. The survey reveals that nearly 27% of the total old buildings have been replaced by modern structures.

The survey conducted shows that nearly 30% of the people in the core area have either their workplace or their residences more than 4Km away from this place. It is indicative that people belonging to the core areas have started migrating to better-developed areas. The survey indicates that most of the people living in the core area own a two-wheeler and few even own four-wheeler automobiles. Nearly 30% of both the residential clusters and the shops in the main shopping street are rented to new people and the original owners and inhabitants have migrated out to more open and newer areas. Thus the residential areas are slowly converting to commercial hubs and godowns. With the out-migration of the original inhabitants, the new people who are occupying the buildings are from different cultural backgrounds. Rapid changes are occurring in the architectural character of old city cores. The out-migration of original inhabitants is affecting not just the tangible built character but also the intangible cultural values of the core area of Chowk. Survey reveals that traffic, services, parking, waste management etc. have always been an issue in the core city areas. Lack of proper public transport, the narrow streets and connectivity make the core area inaccessible for the tourists thus affecting the inhabitants economically. Lack of proper connectivity is also affecting the small scale craftsmen who were the backbone of the cultural heritage. As per the survey, many of the original residents are not aware of the heritage value of the place and this is one of the reasons for their willingness for the transformation.



Figure-3: Area of Chowk

### 4. VEHICLE GROWTH RATE IN THE LUCKNOW

The growth rate of the vehicle in the Lucknow is given below in the form of the graph, And data on the vehicle growth is taken from the website [www.ceicdata.com](http://www.ceicdata.com). The data of the vehicle from 2008 to 2019.



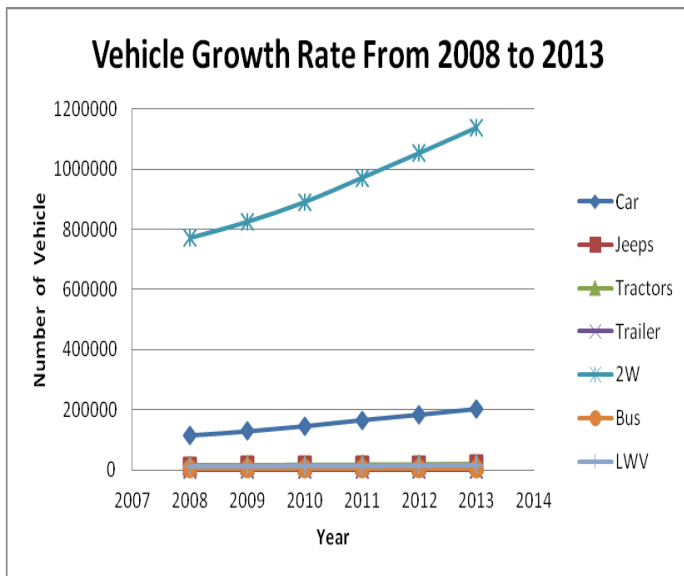


Figure-4: Vehicle Growth in Lucknow from 2008 to 2013.

The second graph of the vehicle growth from 2014 to 2019 is given below:

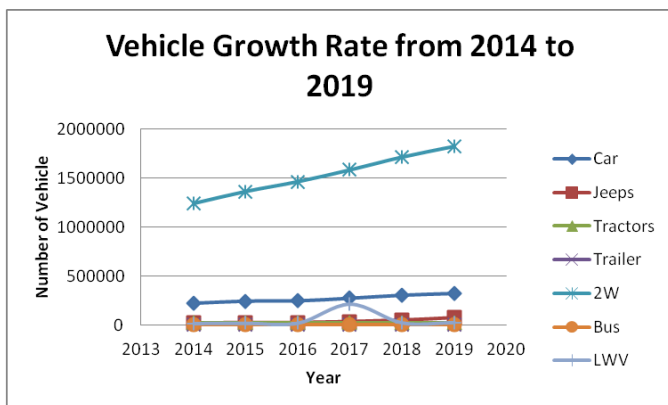


Figure-5: Vehicle Growth in Lucknow from 2014 to 2019.

## 5. CONCLUSIONS

The population of India is growing at a fast pace and so is the rate of urbanization in the country. Today the country has more than 40 metropolitan cities. While researches show that the ideal modal share of public transport should be around 70%, however, it is in tune with only 35%–40% in India’s metro cities. Thus with a nearly 70% share of privately owned vehicles and a growing rate of urbanization, all the metropolitan cities are moving towards a jam-packed situation. This will not only increase the pollution level in the cities but will also affect the economy of the cities. The core areas will become unreachable. People from the core areas will migrate out for greener pastures. This transformation will affect the tourism industry. Over the last few decades, the transport demand in most Indian cities has increased

substantially, due to the increase in population as a result of both natural growth & migration from rural areas & smaller towns. Availability of motorized transport, increases in household income & increases in commercial & industrial activities have further added to transport demand. In many cases, the demand has outstripped the road capacities. As the cities grow in size, the no. of circular trips on-road systems goes up. It has to be noted that smaller cities cannot afford to cater only to private modes of transportation such as cars & scooters or bikes.

After analysing the survey, we found that the volume of traffic is increasing day by day in the Chawk area near Aminabad and Nakhaash. To solve the high traffic volume, need to divide the traffic into four parts because the maximum volume of the traffic is due to the two-wheeler, Cars, Auto, and E rickshaws.

Stop this four-vehicle at a different location. Or Ban The car entry as well as E rickshaws and auto in the Chawk Area because these developed high traffic volume in the chowk.

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