

RESEARCH ARTICLE



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Urban road network expansion: A case study on Mysore city

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Abstract

Developing countries such as India are experiencing rapid urban expansion and land-use change. The road is one of the most significant roles in connection with one place to another place. Moving from one place to another has become the main concern in today's context. Considerate the urban road network expansion pattern and its consistent social and environmental effects is a sensible way to enhance complete urban planning and keep the city maintainable. The creation of roads is exclusive to the extremely extensive forms of natural landscape disparity. This paper mainly emphasizes the road network development in Mysore city. to analyze the development of road network length Geographic Information System (GIS) technology used for plotting the maps. Toposheet have been used for road network maps of 1972-73, 2005-06, and 2016. And also, calculation of the increased road lengths. The land transformation causes the road network length was increased by 1719 kilometers between 1972-73 to 2016.

Keywords: Road development; network; Mysore city; Geographic Information System

Introduction

Due to an increase in population and extension of the city and limiting size of the internal markets for goods and services and the city grows large enough limitations utilizing internal circulation of people on top of goods can have a decisive dampening effect on urban development and growth. The growth is affected by transportation, social, economic, cultural, and geographical factors. People started moving from place to place for various purposes such as education, pilgrimage. In this time the construction of KRS Dam. Railway workshop, Mysore University, Attar Kachari, and Transportation services were availed

to carry materials. The first time the city buses were introduced in 1940. The private buses were introduced in the city by C. Persual Chatty. The vehicles were introduced to carry patients to the sanatorium and workers to the railway workshop. Later the government introduced the Mysore state road Transport Corporation for public service.

The Mysore palace was constructed in the year 1924, around the palace cement road was constructed for public transport purpose. The Shivarampet was a commercial street it is stretched from the Sayaji Rao road and ending at Kukkarahalli Lake. The Ramavilas road extended from Sayaji Rao road to Maharajas College. The central bus stand was located by

the side of the palace and buses were moving in different directions to carry passengers inside and outside of the city. Due to the increase in population and employment opportunities the private vehicles were introduced for transportation by southern railways, java company, central food technological institute, and some other industries.

Objective

Assessment of road network expansion in Mysore city from 1972-73 to 2016.

Study Area

Mysore city is the most tourism magnetism palace city and the second-largest city in the state of Karnataka. Mysore has located 135 km from Bangalore, the state capital. It is the headquarters of the Mysore district and the Mysore division and lies about 146 km (91 mi) southwest of Bangalore, the capital of the state. The city is spread across an area of 128.42 sq.km (50 sq mi) and is situated at the base of the Chamundi Hills. Mysore city is located at 76°39'E and 76°42'E longitude and 12°18'N and 12°30'N latitude and has an average altitude of 770 meters (2,526 ft). It is located in the southern region of the state of Karnataka. Mysore city has 65 wards and the total population is 8,85,416 (census of India, 2011). The existing two-lane road linking Mysore to the state capital Bangalore has been upgraded to a four-lane highway. National Highway 212, and State Highways 17, 33, 88 passes through Mysore connecting it to nearby cities.

Methodology

The methods that have been mainly used in this research are firstly selected Toposheet of Mysore city road network maps of 1972-73, 2005-06, and 2016. Digitizing the all three decades road network with the help of Arc GIS 10.3 software techniques and also calculate the length of the increased roads of Mysore city. For road network analysis purposes Traffic police limit Mysore city boundary has been selected.

Result and Discussion

After the Independence period from 1950 to 1960 the government has established more institutions in the city. More schools and colleges were built outside the city and necessitated the transport system to carry students. In 1970 the industries were established in Hebbal, Yadavagiri, and Nanjangud industrial areas. In this period, they have given more importance to the transportation to carry workers. In the fifth Five-year plan the Indian National Highway system was introduced and many roads were widened to accommodate the increasing traffic. Tourism also expanded; it was followed from 1974 to 1979.

The German printing press, defense food research laboratory, Sri Jayachamarajendra college of engineering, speech and hearing, the central institute of Indian languages were established in 1980. During this period some of the industries were also established such as Vikrant types Mysore lac and paints, falcon tires, speech and hearing, Archaeological society German printing press, Mandyanational paper mills, Sujatha textiles in Nanjangud and home industries are Vasu Agarbathi, Mysore sandalwood oil factory, Ganesh Beedi, and AraindaParimalawork. And also, during this period vehicles were increased due to an increase in population and employment opportunities. Between 1981 to 2001 population was gradually increased there was a demand for transport due to the established institutions, state, and central government officers, RBI, Larson and turbo, TV Sundaram motors, Kirloskar, and Infosys. The educational institutions such as Vidhya Vardhaka College, Vidya Vikas College, Government, and Private First Grade Colleges, ITI Institutions Polytechnic college, J.S.S Medical, and Dental college, Foruquia Dental College, and B.Ed colleges. During the year 1972-73, the total road network is 725.96 kilometers. Between 1995 to 2005, much information technology industries were established.

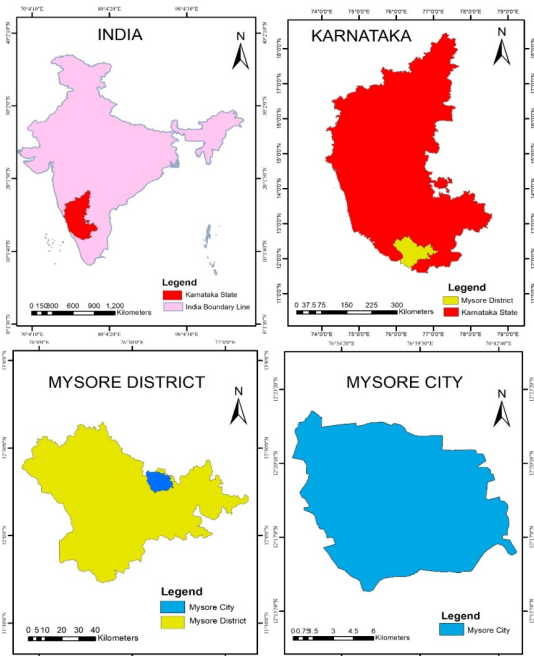


Fig. 1. Location map of Study area

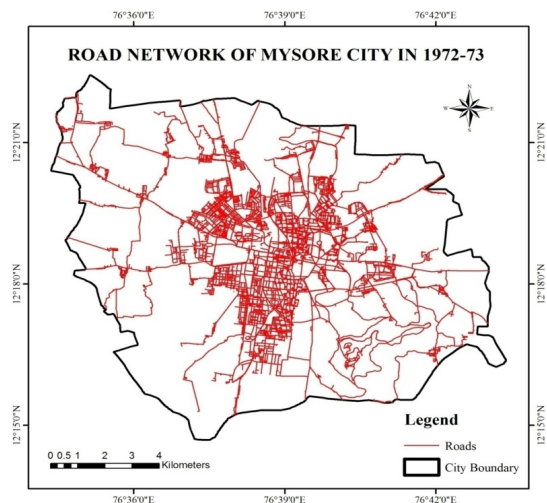


Fig. 2. Road Network of Mysore city in 1972-73.

The Infosys, software paradigm, Larsen and turbo, Wipro InfoTech, Comet, and Medisoftware have created several jobs for the youths, which increased the demand for transportation in the Mysore city. By this time vehicles were increased due to a shortage of public transport and an increase in the economic condition of the people.

Since 1972-73, the Road Network length increased up to 2,322.42 kilometers in 2005-06. The city has roads owned by corporation, Mysore Urban Development Authority (MUDA), University, Education Institutions, Government officers, and Research activities. It related activities. The people are largely dependent on different types of transportation. Due to time consumption, due to distance, shortage of public transport and increases in living standards, and non-availability of transport facilities from residential place to working place.

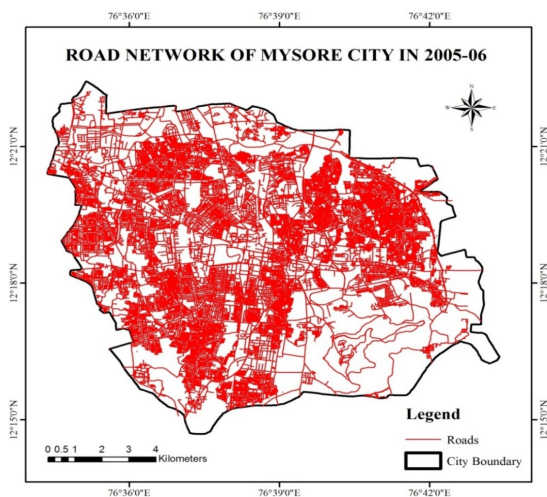


Fig. 3. Road Network of Mysore city in 2005-06.

SH-17, which connects Mysore to Bangalore, was upgraded to a four-lane highway in 2006, reducing travel time between the two cities. A project was planned in 1994 to construct a new expressway to connect Bangalore and Mysore. After numerous legal hurdles, it remains unfinished as of 2012.

Mysore Urban Development Authority (MUDA) is the Back Bone for the development of Mysore city roads. In the transport sector project, the MUDA expenditure more than crore together every four years one time, they planned up to 2028-31. There are many transport sector themes like 4- and 6-lines phases in the outer ring road for completion and conversion city center to ring road connecting Radial roads and other new roads. This project focuses on main road improvement and other road improvements.

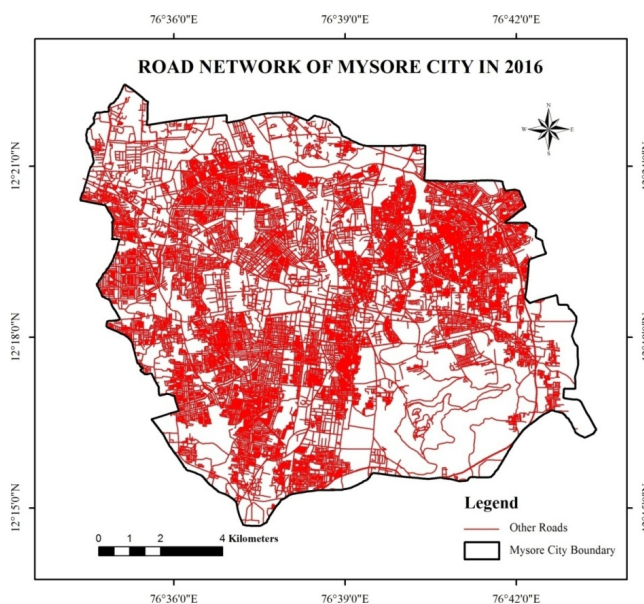


Fig. 4. Road network of Mysore city in 2016

Table 1. Road Network Length in Mysore City

Sl. No	Year	Road Length in Kilometers
1	1972-73	726
2	2005-06	2,322
3	2016	2,445

Source: Survey of India Toposheet

The NH-212 passes through Gundlupet, Nanjangud, Mysuru, and T.Narsipur, this road carriage width normally varies from 7 to 10 meters but From Mysuru to Nanjangud width 15 meters, this new four-lane stretch 95% of works completed in 2016-17. This new road is made essential by the huge traffic load, Nanjanagud being an industrial town, more trucks, heavy vehicles move on this road. Figure 1, depicts the development road network length in Mysore city. The

road network length was 1719 Kilometers increased between 1972-73 to 2016.

Conclusion

To summarize, in this study the road network of Mysore city 1972-73, 2005-06, and 2016 for instance, analyzed the expansion of road network. Mysore city roads are rapidly increased over the past 50 years. In the 21st century got new innovative technology equipment has arrived for new road constructions. In 2017 innovatively introduce Concrete Roads in Mysore city, as long as it will come more durability in the future. Mysore is connected with the aid of National Highway NH-212 to the kingdom border town of Gundlupet, in which the street forks into the states of Kerala and Tamil Nadu. State Highway 17, which connects Mysore to Bangalore, changed into upgraded to a four-lane motorway in 2006, reducing travel time among the two towns. The MUDA was work started six-lanes stretch Outer Ring Road (ORR) in 2003-04. The maps presented here provide a useful tool to

analyze historical trends in land use after the independence period. Additional vehicle traffic consequential from highway capacity rises likely to be connected with encouraging urban development demand.

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