Urban Transport and Traffic Management - For Sustainable Transport Development in Mysore City

Dr. Harish M, Transport Planner, Centre for infrastructure, Sustainable Transportation and Urban Planning (CiSTUP), Indian Institute of Science

ABSTRACT

The study is of great importance at present due to the bad state of traffic management in Mysore. In the past decade, although there have been technological improvements in almost all fields, the state of traffic management technologies is still at a primitive level. A clear framework for traffic operations is necessary towards traffic delays, congestion, and parking and management functions. The unplanned urban growth has brought traffic problem in the urban area of Mysore. The technological revolution especially in transportation has brought changes in the life style on the urban area. Without the formulated goals and objectives especially in traffic management, may be counterproductive. This paper has provided the traffic management related to time delay, congestion, parking and framework of operations identifying the clear vision and mission statements for the future. The main focus of the framework is to identify traffic management viz. accessibility and mobility, safety and security, economy and environment. The planners have a greater challenging role to play in the present context where social planning and adopting new technology on traffic and transport is given utmost importance.

Keywords

Inadequacy, congestion, terminus, predicting, utmost

INTRODUCTION

The Mysore is second largest city in Karnataka next to Bangalore situated in the southern most part of the state. The city of Mysore is spread geographically over an area of about 128sq.km with the growing population is of 9, 18,225 (Projected). The Mysore city is known for tourism, education, medical facilities etc. in India at faster rate due to industries such as software, information technology activities etc., and the automobiles has been on the rise in the urban area of Mysore. The economic activities and increase in the income by the public generate large income posing a problem of traffic flow in Mysore city. While the improper planning and maintenance of transport has lead to spreading of congestion, accidents, flow of traffic etc., At the same time the total number of vehicles has increased in an accelerated rate are 304282 vehicles on roads in Mysore city.

A research conducted by Balamahoan (2000) has given importance to trip generation, land use, travel pattern and trip rates. Keith R. Johnson (2003) has prepared a model for Manipur State's road upgrading, maintenance and rehabilitation. Lakshman Rao (2000) has given importance to pollution, congestion, unsafe and uncomfortable travel that occur on a transportation system by using 3 distinctive separations in urban centre with, high intensified and urban sprawl. In a similar manner, Shih-Lung (1984) has developed the procedures for creating a database for household and individual trips log data for travel characteristics using GIS. Reginald Souleyrette (2003) is based on design and efficiency of traffic monitoring program to collect volume, gross weight and classification of vehicle in the road network.

PROBLEM STATEMENT

The study is of great importance at present due to the bad state of traffic management in India. In the past decades, although there have been technological improvements in almost all fields, the state of traffic management technologies is still at a primitive level. In future, for the overall development of the country it is important that transport infrastructure, of which road traffic is a very important part, should be made state-of-the-art. This makes the study very valid in the present conditions existing in the city of Mysore.

OBJECTIVES

1. To study problem of public transport in Mysore city.
2. To identify travel time, delays, congestion, parking in the study area.
3. To suggest and manage traffic congestion for future and their control.

METHODOLOGY AND SOURCE OF DATA

The study has done in a systematic way by collecting various data from different sources organizations. The secondary data pertaining to the number of road accidents have been collected from the traffic police stations and civil police of rural areas; registration of vehicles from

different Regional Transport offices different land use data from Mysore city corporation (MCC), Mysore development authority (MUDA) and District statistics office in Mysore city. The maps have been prepared by using Geographic information System software's based on the Mysore Urban Development Authority and from Mysore City Corporation maps of land use 200,proposed maps of 2011, comprehensive development plan and topo-sheets from survey of India, Bangalore. All these data sets have been used for the analysis with the spatial distribution and location of accident spots, traffic flow etc. This data has been added to GIS; generate the thematic maps using a set of software's.

With the increasing urbanization, the complexity of the problems has multiplied in Mysore. With a population of 9, 18,225 according to 2011 census (projected) and ever increasing rural and urban migration, the city's infrastructure is beginning to take its toll. Population growth leads to an increase in demand for public transport. But due to the limited availability of such services, there in an average increase in the number of private vehicles in the city. The economic activity has increased, which has the purchasing power enhanced by consumerism among the citizens. The vehicle population presently stands at 4, 38,003 (31st March 2011). The motorized vehicles in the city have been increasing day-to-day as shown by the following table-1

Table: 1.Registered Vehicles in Mysore

Type of vehicles	1995	2000	%cent	2005	%cent	2010	%cent	2015	%cent	2020	%cent
2 wheelers	102521	171510	13.45	279920	17.30	351074	16.16	439774	16.44	525180	16.49
3 Wheelers	6261	10326	12.98	13441	11.46	17155	11.59	20745	11.56	24324	11.54
4 wheelers	7986	17483	23.78	2791	24.97	49180	34.38	46583	24.16	57471	24.78
Truck/ Bus	2537	3555	8.02	15166	49.77	9223	17.56	15538	25.62	18704	25.48
Others	3784	8709	26.02	29	-9.92	371	-6.01	713	-4.05	1055	-2.88
Total	123089	211583		311347		438003		523352		626734	

Source: Regional Road Transport Offices, Mysore

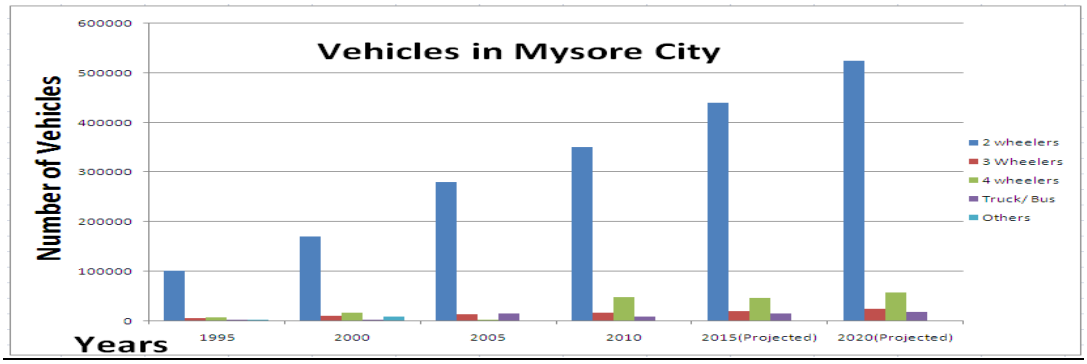


Fig. 1: Growth of vehicles in Mysore city

The following table -2 indicates registered vehicles in Mysore city for the last few decades and projected data for 2020.This data reveals that city has a maximum strength of 2 wheelers have been registered. The 2 wheelers has increased from 102521 in 1995 to 279920 in 2005 by an increase in 13.45 percent annually resulted in boom in the economy and real estate business. But in 279920 in 2005 to 2010, 351074 and increase due to boom in economy by 16.16 percent annually, but when projected data for 2020 shows that there is a increasing trend to 16.49 annually and the number may be 525180. The 3 wheelers in the city have showed a marginal growth after 2005 from 13441 to 17155 to 2010 by an increase in 11.59 percent annually.

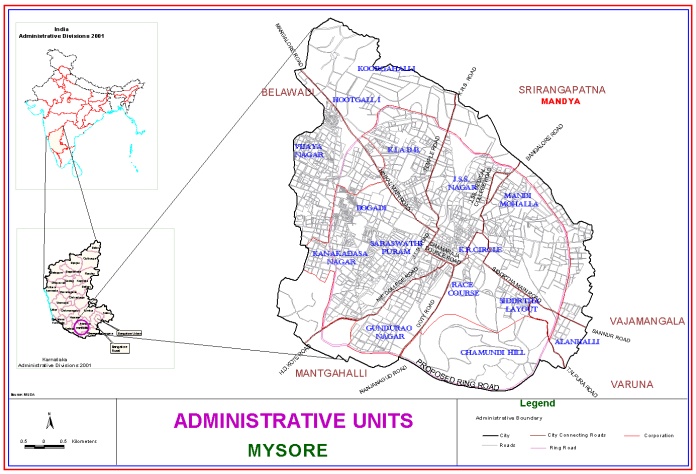
Even the projected data for 2020 shows that there will be marginal decrease to 11.54 annually and the number may be 24324. But the 4 wheelers have shown an increasing trend which will occupy more or roads and leads to congestion in traffic. The trend shows that the 4 wheelers has increased from 2000 (17483) to 2005 (24324) by annual growth by 23.78 percent. The percent has increased to 24.97 in 2001, by 49180 in number. The projected details show that it may increase by 24.75 percent may be 57471 vehicles in 2020. During 1995 the trucks were 2537, the limited economy was there during that time it shows a increase to 15166 due to introduction of new mini carrier goods, auto, goods carrier etc. But in 2010 it showed a decreasing trend, because the government has sub classified and moved the passenger of 10 person vehicles in to 4 wheelers, such as cabs etc. There was a recession in the economy and real estate so there is a decrease in trend to 17.56 percent, but the projected data shows that there may be slightly increase trend to 25.48 and the number stands at 18704. The other vehicle which form a small in number such as imported vehicles, ambulance, earth movers, road rollers, concrete mixture

machines etc, were reclassified and moved to other class, such as ambulance, cabs and taxis moved to 4 wheelers, mini buses to heavy motor vehicles, goods carrier and goods auto to truck classification. But the data shows that there was a trend in increase of 26.02 percent in 1995 (3784) to 2000 (8709), but in 2005 it was 29 to 371 by 2010 it showed a decrease in trend by -9.92. The projected data for 2020 also shows a decreasing trend by -2.88 percent and the number of vehicle would be 1055. The Mysore nearly has 4,38,003 vehicles at present and it is increasing at the rate of 11,000 vehicles per year causing severe problems on the roads.

STUDY AREA

The Mysore city occupies an important location in the larger context of southern part of the Karnataka State at 12'18 N latitude and 76'12' E longitude. Mysore city lies in a saucer shaped basin flanked by Chamundi Hills on the south east. It is situated in-between two rivers Cauvery and Kabini.

Mysore city is next only to Bangalore in importance as a growing urban center. It is described as a Palace and garden city. The city is spread over an area of 87 sq km and it is situated in an undulating surface.



Map1 represents the study area

TRANSPORT PLANNING AND MANAGEMENT

There is also an indication that the city growth, physically, has to be regulated due to the constraints of availability of land for expansion. It is therefore a necessity that an effective mass transportation system has to be provided for the efficient functioning of the city. The very fact that the private vehicles have far exceeded the number of the government public carriers such as buses is an indication of the inadequacy of the public city bus services. Obviously, people have taken to using their own vehicles, to avoid delays and get to where they want to.

The City Development Plan (CDP) for Mysore (2004) indicates that the number of motor vehicles has increased almost 25 times in the period 1970-1996. There were 1,093 km of municipal roads with 767 buses plying the roads, with a capacity of 255 passengers. The survey on which the CDP was based indicates that a fourth of the households without vehicles, 28 per cent with bicycles, 48 per cent with two-wheelers and 4 per cent with cars.

That leaves about 30 per cent of the households (households with bicycles and two-wheelers use public bus services at times) using public transport. The mobility has however increased for the private vehicle using households; that is, household trip rates increased to 9.4 per day among the households which have all the three modes of transport. Home-to-work trips constitute 23.2 per cent, home-to-education 19.5 per cent and home-to-shopping trips 2 per cent. Inter-city trips by bus constitute 12.72 per cent, by two-wheelers 21.7 per cent and slow moving vehicles like the bicycle 16.93 per cent. And nearly 36,000 tourists travel in and out of the city every day. About 100,000 persons use the inter-city bus terminus and about 150,000 use the central city bus terminus every day. There are about 426 thousand commuters in the city.

Giving the statistics above, the CDP for Mysore is silent about a transport plan for the city, except highlighting the importance of the proposed outer ring road (it is partially completed now), intermediate ring road and the inner ring road. But the plan document certainly speaks of the key issues in road maintenance:

- Need for upgrading of road infrastructures (repair to roads);

- Need for upgrading signage systems, especially for tourists' benefits;
- Need for radial roads connecting outer ring road and upgrading inner ring road;
- Need for an outer peripheral road for diverting heavy traffic away from outer ring road; and
- Need for an integrated rapid transport system.

The CDP also emphasizes the bus rapid transport system (BRTS) for Mysore city as it is growing at a faster pace. Nothing about how this can be done is posited in the plan. But the CDP sets out goals and visions for the mission period 2007-12 and funds required financing the achievement of these goals. At some point in the vision period, the city would examine the feasibility of the mass transport systems such as the BRTS, electric trolley buses or light rail systems. What is primarily lacking in the CDP is ***how*** the problem of transport could be resolved through transport planning and management.

Most people in the city are happy that Mysore is the boom city, next after Bangalore, and it is also a heritage city they can be proud of. But not many think of transport planning and management (City Herald, December 8, 2007: Traffic Sense: A Wake Up Call). What is even more important to consider is that the people of Mysore are exposed to air and noise pollution that have crossed the permissible limits. The pollution is attributed to the burgeoning vehicular flow, two wheelers in particular, and public transport vehicles which are not properly maintained at all.

A study by the CPR Environmental Education Centre-Mysore Grahakara Parishath (Prashantha, 2007) has found suspended particulate matter (297-457 micrograms per cubic centimeter against permissible 200 micrograms per cubic centimeter), levels of oxides of nitrogen (32-68 mig/cc against permissible 80 mig/cc) and sulphur dioxide (5-8 mig/cc against permissible 80 mig/cc). The noise levels in the cultural capital of the State range from 73 dB to 77 dB. The levels clearly exceed the permissible standards by a big margin.

Air and noise pollution have definite health consequences which are a great concern of the government agencies in charge of health and medical care. Proper maintenance of vehicles, regulation of traffic and growing more trees are suggested as the solution to cut down on the drastically increasing pollution levels. Implicit in the study and suggestions are the twin areas of transport planning and management.

'Road maintenance, planning for under pass, subway parking lots, flyover, faster and efficient modes of public transport are still on paper, showing mega dreams in the minds of Mysoreans' (Nagaraj, 2007). Lessons learned from Bangalore must set an example for Mysore transport planning and management. And the Government of the day must pull up its socks in time, so to speak, and prepare the tier 2 city for the future. Works related to infrastructure to ease traffic must begin now than years later when the traffic starts to burst at the seams.

RESOLVING TRANSPORT PROBLEMS

Mysore city is beset with problems of transport has amply been proved by the analysis of traffic flow and patterns in peak and non-peak hours in all seasons. The four issues that have emerged from the study are:

- Public transport or rather the delays in getting to places;
- Parking problem or rather the inadequate parking spaces in the city; and
- Traffic congestion, violations and their control.

RESOLVING PUBLIC TRANSPORT DELAYS AND TRAFFIC CONGESTION

The commuters and travelers from outside the city could get to their places of destination in time. Unless the traffic on the roads to the city is decongested, this cannot happen. Ring roads have proved their worthiness in decongesting the traffic lanes because they have taken on the truck and lorry traffic, but *there is a limit* beyond which they cannot be helpful in decongesting traffic on the city roads. Keeping in view the likely increases in the private vehicles, 2-wheelers and 4-wheelers, especially the latter, in the next few years, efforts must be made to build freeways around the city that could take the inflowing traffic into the city through several entry points. This would perhaps make the travel longer than necessary but the people will get where they want to in time.

Public transport is an alternative to high-cost private transport but then the public transport must be dependable for travel and getting to places in time. If this is done, there will be some slowing down in the increase of private vehicles, for most middle class consumers would turn to *cheaper, quicker and reliable public transport*. The problem in the final analysis appears to lie in the fact that the public and private bus stands are right in the middle of the city and there is a large flow of buses towards them right through the day and night.

The one reasonable solution for the problem is *moving the public and private bus stands out of the centre of the city and building them in the city outskirts*, from where the people can take town buses or private vehicles into the city. Not that this has not been done elsewhere in the country and found useful in decongesting the city. It is possible to build more than one central bus station in the city outskirts and stopping the bus inflows at the entrances to the city: *one at the entrance to the city along the Mysore-Bangalore road, a second at the entrance to the*

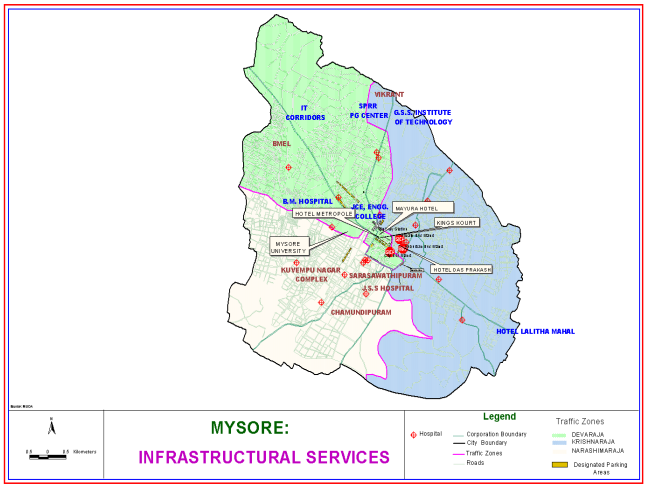
city along the Mysore-Hunsur (Mangalore) road and the third at the entrance along the Mysore-Ooty(Nanjangud) road, for example.

Implementation of BRTS in CBD to sub-Urban area reduces the large two wheeler population; where traffic prone to frequent congestions during peak hours; leading to jams causing huge delays in travel times, accidents, pollution etc. Moreover, pollution created by these vehicles is a huge cause of concern for the public and local authorities alike. But the state/ local government has to provide people with alternative, economic and better transport facilities. The Bus Rapid Transit System (BRTS) is one such initiative for reducing the private vehicles in the city. Therefore, more effective bus transit services should be provided in Mysore city during the peak hours. Finally, this paper proposes a set of feasible strategies for creating which is used for public transportation environment; which will ensure a sustainable transportation development in Mysore city.

RESOLVING PARKING PROBLEMS

Among these, traffic violations are assuming dangerous proportions. So much so, the fines collected from the violators have more than doubled since 1997. According to a survey during the year 2004, parking has become an intractable problem not because parking spaces are lacking in the city but because there is stiff opposition to pay-and-park schemes. But there is no alternative to pay-and-park option because in the long run that will be the only way the city could manage the growing number of vehicles and the need for parking places.

Privatization of parking schemes is another solution that must be given serious thought as indeed the private, pay-and-park places operate very well and with profit for the operators and safety for the vehicles of the private owners. Besides parking places require maintenance. If encouragement for private operators is forthcoming, in the way of licenses and tax relaxation, then they will come forward to develop convenient parking places.



Map2: Represents the designated parking areas.

PUBLIC PARTICIPATION IN TRAFFIC SAFETY PLAN

A traffic safety plan has been prepared some years ago, in 1995, but successive City Commissioners, RTOs and Corporation Commissioners have not even acknowledged the existence of thee plan. There is now the need to prepare an upgraded plan of action with a time frame to implement each step so that the historic city could become a safe city for its residents and the tourists.

URBANISM: AN ALTERNATIVE PLANNING MODEL

Urbanism comprises a collection of interacting models that simulate different processes within the urban environment and has been developed and applied in the USA. The central objective of UrbanSim is to provide planners and stakeholders with tools to formulate different investment and policy scenarios, modeling their effect on patterns of development, transport and a range of environmental impacts. Specifying alternative packages of forecasts, land-use policy assumptions and other exogenous inputs creates scenarios. The results are analyzed via the GIS viewer component of the user interface. UrbanSim takes a behavioral approach to capture complex interactions in the urban system, by predicting the behavioral ramifications of a particular policy scenario.

STRATEGIC TRANSPORT MODEL: A SUGGESTION

Given the contexts above, it would be good to think of a strategic transport model for applying to the situation obtaining in Mysore city. First is the fact that the CDP

does not use a model for planning and managing the transport in the city. Second, in the absence of a specific model, a generic model such as the Strategic Transport Model may be used for developing transport planning and management strategies. This model is recommended for use in transport planning and management for Mysore because this has been successfully used in very many contexts, but particularly in Australia. This model was developed by the New South Wales Transport and Population Data Centre and it analyses transport and traffic patterns in a highly disaggregated form (Rickwood et al., 2007). This provides information on travel for all purposes - for example, shopping, business, education, social/recreational — and all modes. It is because of the sample requirements, the scholar has not been able to use the model and arrive at a model result. Small sample sizes will be too small to allow accurate estimates for minor modes such as cycling or for analysis of travel patterns for specific purposes at fine geographical scale.

CONCLUSION, SUGGESTION AND SCOPE FOR FUTURE WORK ON URBAN TRANSPORT IN MYSORE CITY

There are nearly 9, 18,225 (Projected) vehicles choking the city lung spaces. The vehicles is been increasing in multiple ratio but the land is stagnant. The transportation land use has not shown changes on par with the vehicles. The prospect is that the Mysore city roads would change for worse, if the boom city becomes accepted as the next most attractive hub to Bangalore. It appears that the 1,773 km road network of the city has hardly seen any efforts to manage and maintain its strength and quality (Nagaraj, 2007). But the city has been managing the transport problems even if inefficiently so far and there is scope and hope for the future, for two reasons: the City Government cannot any longer ignore transport planning and development and must gear up sooner or later for developing a plan for transport and its management; and newer thinking is emerging with the public becoming aware of the situation and participating in decision-making.

The local government in the Mysore city Corporation and the City bus service (KSRTC or MCTC) has to think of planning and would emerge as the most significant planning and management exercise in the future by taking into consideration of the following studies such as Encourage car pooling, Implementation of BRTS, Incremental technologies for traffic signal hardware, Parking control standardization, Automated toll collection for buses, Bus lane implementation, Better signs, route maps and signals, passenger information systems in the form of variable message signs, Efficient licensing systems, Trials for applicability of 'Area traffic control systems', segregation of traffic towards various arterials, installation of LED based signals, synchronization of traffic signals, construction of flyover, installation of cameras/sensors on ring road and maintain a control room, Variable signs to be installed at vital positions for incident messages, real time traffic speeds, traffic situation in the area to be reported on radios, television. Enforce strict lane discipline for buses in areas of Mysore city.

This may bring about a synergetic transformation in the commuter, through these technologies. It may lead benefits, including the reduction of commuter waiting time, fuel consumption, emissions, traffic congestion, operational costs etc. It will increase the accessibility of the system, safety of users, and improve traffic efficiency, environmental quality, energy efficiency, and economic productivity.

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