

Retrospection of Traffic Complications and Intelligent Transportation Systems

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Abstract - This traffic signal provisions and the avoidance accident rate, a data and material facts have been shown in this research paper. It is a social research for the guidance of the public at traffic signals for safe journey to their respective destinations. The present topic is related with a social enigma and stipulation for prevention of accidents & traffic congestion on the roads.

1. INTRODUCTION

Traffic jams is a major transport problem in Pune. Due to traffic jams, there is possibility of accidents because of poor traffic management. We all know that Pune is a developed city and densely populated. But there are some basic traffic problems of Pune which needs attention and solution as soon as possible so as to maintain the actual growth in terms of basic development.

2. OBJECTIVES

- 2.1. To study the traffic caused by the use of road transportation
- 2.2. To explain the need of intelligent transportation system

3. LITERATURE REVIEW

Experimental analysis conducted by several investigators has shown that the weak transportation system has various drawbacks which directly impact the economy of the country along with its social, mental and environmental impacts. Traffic jams is one of the factors which happens due to poor transportation system. By referring many journals, we concluded that traffic is mainly caused by poor transportation infrastructure.

Prof. K. V. Krishna Rao worked on Evaluation of Development Plan towards Sustainability for Pune Metropolitan Area Pune Municipal Corporation (PMC), he evaluated and provided a classification among various types of road traffic Amudapuram Mohan Rao & Kalaga Ramachandran Rao, both worked on Measuring Urban Traffic, they concluded Traffic congestion has been one of major issues that most metropolises are facing. They further

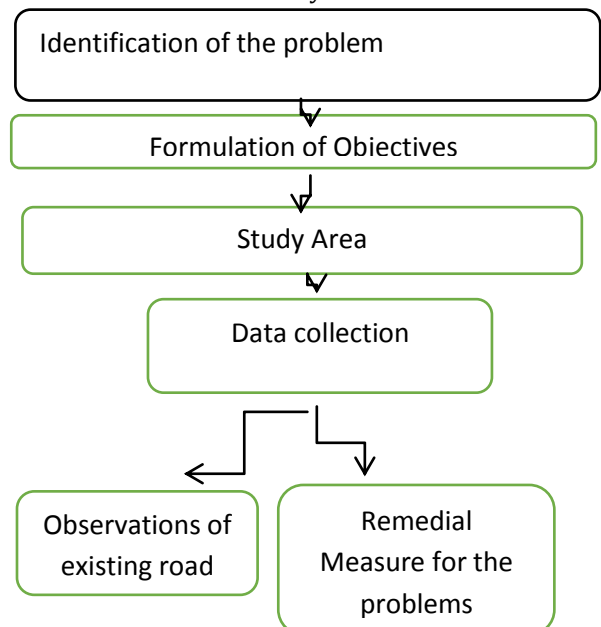
concluded that identification of congestion is the first step for selecting appropriate mitigation measures.

Robert Cervero studied that, roadway investments spur new travel and thus fail to relieve traffic congestion, known as induced demand, have thwarted road development in both the United States and abroad.

Md Aftab uzzaman, Graham Currie studied and evaluated the jams Relief Impacts of Public Transport in Monetary Terms. They concluded that Traffic congestion is a major urban transport problem. Efficient public transport can be one of the potential solutions to the problem of urban road traffic congestion.

4. METHODOLOGY

This methodology provides the framework for the evaluation of traffic of Pune city



5. ROAD TRANSPORTATION INFRASTRUCTURE STUDY AND REVIEW

Inefficient Road Network: Since 1960, traffic in pune has increased by more 105 times, whereas the road network has grown by merely by 6 times. Hence due to huge traffic load, the road network is insufficient and hence is causing traffic jams and fatal accidents. As per the data, the existing road network is 7% while the requirement is more than the double i.e. 15% .Hence there is a gap of 8% between them and due to this gap, there are many huge traffic jams in different parts of the city and these traffic jams are time consuming and hence the commuters are in a hurry to reach their destinations. For saving their journey time, some of them increase their speeds and meet with accidents which may cost to their properties and sometimes to their life. The road infrastructure has not expanded in tandem with the increase in the number of vehicles in the city. In the last four decades, the population of the city has increased four times whereas the vehicle population has increased 87 times and the road length has increased by only five times. With the projections indicating that PMC would have a population of about 45 lakhs by 2021 and 57 lakhs by 2031, the road and transportation infrastructure has to not only meet the existing demand but also cater to the demand that will be generated by the increasing population.

Table -1: Daily Traffic in PCU at Outer Cordon Stations

| STATION | IN | OUT | TOTAL |
|---------------------------|-------|-------|-------|
| Hinjewadi Road | 13561 | 11885 | 25446 |
| Saswad Kondwa rd. | 10715 | 9538 | 20253 |
| Hinjewadi (Shivaji chowk) | 19158 | 16829 | 35987 |
| Ahmednagar Rd | 12580 | 12655 | 25234 |
| Talegaon express highway | 25070 | 25469 | 50539 |

6. IMPACTS OF TRAFFIC PROBLEMS

Traffic Jams involve queuing, slower speeds and increased travel times, which impose costs on the economy. It has also a range of indirect impact including the marginal environmental and resource impacts of jams, impacts on quality of life, stress, and safety as well as impacts on non-vehicular road space users such as the users of sidewalks and road frontage properties.

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7. REASONS OF TRAFFIC PROBLEMS

7.1 New Traffic Norms: Due to new traffic norms like one way, only right turn, only left turn etc., numbers of vehicles at a particular point increases which results in traffic jams on not only that point only but also to the previous and next point Streets of Pune are not too wide spread, due to illegal possession on the road they are getting narrow and becoming a reason behind traffic jam. So, every possibility is there to expand the road as per their right of way to reduce traffic jams. Moreover, this will be less expensive and less time consuming due to land acquisition won't be required in this process.

7.2 Illegal Parking: Illegal parking on the road has been creating jams every day. On-road parking of vehicles is one of the main reasons behind serious traffic jams in different parts of the Pune city.

7.3 Increasing number of populations: All the areas under Pune city are facing an increasing number of populations which is a bad indicator for the traffic management and this could be a vital reason behind traffic problems.

7.4 Higher Purchasing power of the public: Due to the higher purchasing power of the citizen of Pune city the numbers of vehicles is increasing every day but existing roads, subways, FOB and highway are not constructing according to the increasing number of vehicles. As a result, traffic jams is increasing at an alarming rate

7.5 Improper Lane Management: Lane management is an important fact in managing the traffic in Pune. Many types of the vehicles try to overtake the vehicles even in the single undivided road. This is the main reason that the city roads are unequipped with the lane dividers which divide the lane into incoming and outing traffic

8. EXPLICATIONS TO TRAFFIC COMPLICATIONS

8.1. Bus Rapid Transit (BRT), metro rails and mono rails should be built in different part of the city to encourage the use of public transport.

8.2. Mass Transit System should be started in the city by inviting private operators to share the burden which will help in carrying more people with fewer vehicles. E.g.-For carrying 50 employees of a company 50 Two-Wheeler, 25 auto rickshaw, 20 cars will be required but only 1 bus can carry all. This will not only reduce the cost but also help in reducing pollution and will carry more commuters in 1 vehicle.

8.3. Installation and use of sensor-based systems for monitoring traffic

8.4 Sensor based systems can also adapt with respect to various weather conditions, because traffic flow varies with the various seasons.

8.5. Sensor bases systems behave in a dynamic manner rather in static manner like traffic lights.

8.6 Vehicles should be not allowed to park at roads.

8.7. Strict lane management Different lanes for different types of vehicles should be marked on the roads.

8.8. People should be motivated and educated to use public transport more and more.

8.9. Sharing Transportation System (STS) should be promoted.

8.10 Traffic rules violaters can be tracked by CCTV cameras and intelligent devices.

9. CONCLUSIONS

Due to traffic jams, there is possibility of accidents because of poor traffic management. To eliminate road accidents and to save precious human life it is essential to find proper solution for traffic jams which is a global problem and to solve this problem there is a need for collective information sharing between various engineering fields and management fields. This problem cannot be solved by a single authority, every citizen must take the responsibility and contribute in the smallest way possible.

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