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THE EXPERIMENTAL STUDY OF TRAFFIC MANAGEMENT SYSTEM FOR URBAN TRANSPORTATION

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Abstract: Development of any country depends on transportation and infrastructure facilities availability in that country. Transportation plays significant role in national growth of any country. Today, our country facing problems of management of traffic in urban city so that it is challenge for transportation engineer to study traffic, traffic volume, parking management and find out effective ways to manage traffic and avoiding accidents. Design of any pavement structure majorly influenced by traffic volume study. Hence, traffic management is very important in urban transportation. Traffic management is the planning, monitoring and controlling of traffic. The effectiveness of the use of existing infrastructure to ensure reliable and safe operation of transport.

Keywords: Traffic management, urban area.

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INTRODUCTION

1.1 TRAFFIC MANAGEMENT

Most cities in Asian countries are experiencing multi-faceted problems as a result of rapid urbanization and population. Urban congestion is one such problem afflicting urban agglomerations in Asia and has multiple effects on urban economies. Urban congestion is broadly defined as excess demand for travel over its supply. In fact, the reason why governments are forced to revisit their policies for urban mobility is because of growing demand for travel with limited supply of services. The presence of urban traffic management prevents free movement of traffic. Traffic management is an important in urban area in transportation engineering. Traffic management is the planning, monitoring and control or influencing of traffic maximize the effectiveness of the use of existing infrastructure, ensure reliable and safe operation of transport, address environmental goals.

Traffic management and control approaches are used to control the traffic flows and to preventer reduce traffic jams, or more generally to improve the performance of the traffic system. Possible performance measures in this context are throughput, travel times, safety, fuel consumption, emissions, reliability, etc. Currently implemented traffic management approaches primarily make use of roadside-based traffic control measures.

2. STRATEGIES FOR TRAFFIC MANAGEMENT

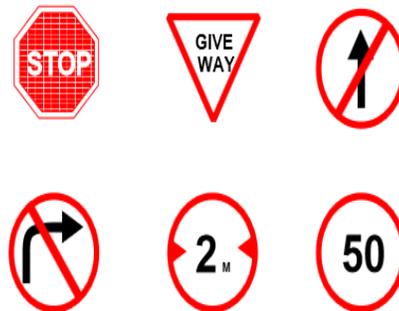
2.1 STUDY OF TRAFFIC VOLUME



The variation of volume with time, i.e. month to month, day today, hour to hour and within a hour is also as important as volume calculation. Volume variations can also be observed from

season to season. Volume will be above average in a pleasant motoring month of summer, but will be more pronounced in rural than in urban area. But this is the most consistent of all the and affects the traffic stream characteristics the least. Weekdays, Saturdays and Sundays will also face difference in pattern. But comparing day with day, patterns for routes of a similar nature often show a marked similarity, which is useful in enabling predictions to be made. The most significant variation is from hour to hour. The peak hour observed during mornings and evenings of weekdays, which is usually 8 to 10 per cent of total daily flow or 2 to 3 times the average hourly volume. These trips are mainly the work trips, which are relatively stable with time and more or less constant from day to day.

2.2 STUDY OF TRAFFIC SIGNAL



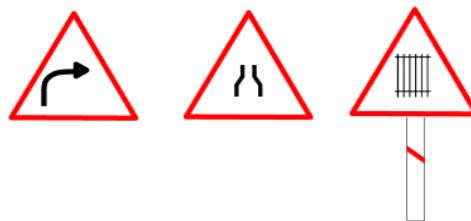
Control using traffic signal is based on time sharing approach. At a given time, with the help of appropriate signals, certain traffic movements are restricted whereas certain other movements are permitted to pass through the intersection. Two or more phases may be provided depending upon the traffic conditions of the intersection. When the vehicles traversing the intersection are very large, then the control is done with the help of signals. The phases provided for the signal may be two or more. If more than two phases are provided, then it is called multi-phase signal. The signals can operate in several modes. Most common are fixed time signals and vehicle actuated signals. In fixed time signals, the cycle time, phases and interval of each signal is fixed. Each cycle of the signal will be exactly like another. But they cannot cater to the needs of the fluctuating traffic. On the other hand, vehicle actuated signals can respond to dynamic traffic situations. Vehicle detectors will be placed on the streets approaching the intersection and the detector will sense the presence of the vehicle and pass the information to a controller. The controller then sets the cycle time and adjusts the phase lengths according to the prevailing traffic conditions.

2.3 STUDY OF ROAD MARKINGS



The essential purpose of road markings is to guide and control traffic on a highway. They supplement the function of traffic signs. The markings serve as a psychological barrier and signify the delineation of traffic path and its lateral clearance from traffic hazards for the safe movement of traffic. Hence they are very important to ensure the safe, smooth and harmonious flow of traffic. Various types of road markings like longitudinal markings, transverse markings, object markings and special markings to warn the driver about the hazardous locations in the road are very important for increasing safety. Road markings are aids to control traffic by exercising psychological control over the road users. They are made use of in delineating the carriage way as well as marking obstructions, to ensure safe driving. They also assist safe pedestrian crossing. Transverse markings are provided along the width of the road. Road markings also contain word messages, but since it is time consuming to understand compared to other markings there are only very few of them. Markings are also used to warn the driver about the hazardous locations ahead. Thus road markings ensure smooth flow of traffic providing safety also to the road users.

2.4 STUDY OF TRAFFIC SIGNS



Traffic signs are means for exercising control on or passing information to the road users. They may be regulatory, warning, or informative. Among the design aspects of the signs, the size, shape, color and location matters. Traffic control device is the medium used for communicating between traffic engineer and road users. Unlike other modes of transportation, there is no control on the drivers using the road. Here traffic control devices come to the help of the traffic engineer. The major types of Traffic control devices used are- traffic signs, road markings, traffic signals and parking control. This chapter discusses traffic control signs. Different types of traffic signs are regulatory signs, warning signs and informatory signs.

Traffic calming is an important technique in reducing both the number and severity of road accidents in Surrey. The County is committed to the promotion of traffic calming schemes where the benefits can be shown to outweigh the disadvantages. In particular, it will give priority to those schemes where the accident reduction potential is greatest.

2.5 STUDY OF TRAFFIC CALMING



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The goals of traffic calming are typically to reduce vehicle speeds, traffic volume, or both. Volume control measures limit traffic by restricting vehicle access. They include full street closures, half closures, diagonal diverters, median barriers, and forced-turn islands. Speed control measures can be divided into three types: vertical, horizontal, and narrowing. Vertical speed controls include speed humps, which are parabolic, circular, or sinusoidal mounds placed across a roadway. Speed tables are basically flat-topped speed humps. Horizontal speed controls slow traffic by requiring vehicles to shift direction in order to maneuver around them. The most common is the traffic circle. Narrowing roadways controls speed by reducing the

amount of lateral space in which vehicles can maneuver. Design is one factor in the ultimate success or failure of a traffic calming measure.

2.6 STUDY OF PARKING STUDIES



Parking is one of the major problems that are created by the increasing road traffic. It is an impact of transport development. The availability of less space in urban areas has increased the demand for parking space especially in areas like Central business district. This affects the mode choice also. This has a great economical impact.

3. CONCLUSION

- To identify the most effective traffic management measures and packages of measures, including their socio-economic and user benefits and their effects on congestion and modal choice.
- To provide guidance to local authorities on how to implement these measures, including strategies for integrating traffic control, driver information and public transport within an overall traffic management system.

- To help city managers to incorporate safety improvements in their transport strategy and give priority to vehicles of particular user groups when managing a congested road network
- To assess the potential for exploiting traffic management technologies to inform long -term transport planning, through the sharing of data on traffic and travel behavior.
- Maximize the effectiveness of the use of existing infrastructure.
- Ensure reliable and safe operation of transport.
- Address environmental goals.

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