Study of Traffic Volume at Chikmagalur, Karnataka India.

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Abstract- The safe and time efficient movement of the people and goods isdependent on Traffic flow, which is directly connected to the traffic characteristics. The three main parameters of a traffic flow are volume, speed and density. In the absence of effective planning and traffic management of the city, the current road infrastructure cannot cater the future needs of the city. Pedestrian and vehicle volumes have increased significantly in the last decade due to the change of the economics of the middle-class families. Traffic flow is studied by manual methods. For better understanding of the present status of traffic flow at the junction, traffic survey is conducted. With the help of the data collection, an attempt had been made to understand the traffic patterns during different time periods. Traffic control at that junction is also dependent on the traffic flow characteristics. Hence the results from the present study are helpful in controlling the traffic at the intersection and also in suggesting some of the remedial measures to improve the traffic safety in the region. Traffic Engineering therefore deals with the applications of scientific principles, tools, techniques and findings for safe, rapid, convenient and economic movement of people and goods.

INTRODUCTION
Traffic volume studies/surveys are the means of obtaining information about traffic. This data collection is basic requirements for transport planning, designing traffic facilities and determination of priorities of roads for improvement and future expansion. In designing buildings, we need to determine loads coming on the structure to calculate reinforcement to be provided for safe functioning of the structure. Here in the transportation volume serves the same purpose. For various traffic engineering purposes first and foremost requirement is traffic volume. Traffic volume count is defined as counting the number of vehicles passing through a road per unit time. Expressing traffic volume as number of vehicles passing a given section of road or traffic lane per unit time will be inappropriate when several types of vehicles with widely varying static and dynamic characteristics are comprised in the traffic. The problem of measuring volume of such heterogeneous traffic has been addressed by converting the different types of vehicles into equivalent passenger car and expressing the volume in terms of passenger car unit (PCU) per hour. PCU is measured to calculate level of service of the road and related attributes like congestion, carrying capacity, volume/capacity ratio, identification of peak hour or extended peak hour etc. The interaction between moving vehicles under such heterogeneous traffic condition is highly complex. Again, the volume is not constant. It increases with time. So, a continuous method of calculating volume is a matter of great importance for smooth functioning of transportation system. If volume data is not found on a continuous basis than the transportation system may fail and the economy of the country may face a great difficulty. Hourly Pattern: The traffic flow characteristic varies in Morning, Evening and Night. Maximum hourly volume of traffic said to be peak hourly volume.

Daily Pattern: The day-to-day variation throughout the week.
Monthly and yearly Pattern: The season-to-season variation throughout the year.

1. PURPOSE OF STUDY
The study of traffic volume at particular location is necessary to fulfill the following purpose.

- To determine the magnitudes, classification and time of vehicular flow.
- To determine the peak hour volume in PCU.
- Improvement purpose
- Intersection design
- Traffic management purpose.

2. STUDY LOCATION & USED METHOD
The study was conducted at Hiremagalur Circle in the Chikmagaluru city. The method adopted is manual count method. The reasons for selection of this method are as follows.
• Classified vehicle count can be obtained.
• Data can be used immediately after collection.
• No special equipment are device needed.
• It is cost effective.
• Data can be collected easily.

CHIKMAGALUR – BELUR ROAD
It is also known as BELUR ROAD, which witness the traffic congestion during the peak hours. The Hiremagalur circle is located at the Start portion of the city. a, railway station road. The study was conducted by manual count method by counting the no. of vehicles entering into junction.

DURATION OF COUNTING
The study was conducted from 20 to 27 Mar 2023 & time chosen in the study was 6am to 6pm which includes morning peak hours, afternoon peak hours and evening peak hours flow. The traffic data collected in the study was by continuous method of manual counting, because the data obtained by this method is more reliable than short-term manual counting method.

TRAFFIC CHARACTERISTICS
There are different types of vehicles present in the heterogeneous traffic, for the purpose of this study, were grouped into eight different categories as follows.

- Motorized two-wheelers (M.T.W), which include motor cycles, scooters
- Motorized three-wheelers (M. Th. W), which include Auto-rickshaws – three wheeled motorized para transit vehicles to carry a maximum of three passengers and tempos – three wheeled motorized vehicles to carry small quantities of goods
- Cars include jeeps and small vans
- Light commercial vehicles (LCV) comprising large passenger vans and small four wheeled goods vehicles
- Bus
- Truck
- Bicycle and
- Tricycle which includes cycle-rickshaw- three wheeled pedal type transit vehicles to carry a maximum of two passengers and three wheeled pedal type vehicles to carry small amount of goods over short distances.

Objectives
• To check out the existing road section stability and it serviceability,
• For estimation of current trends and demands of facilities
• To report the local authority about various vehicle movements and effect on the road.
• Future development of the road requires for the given V.CI vehicle count) of traffic
• Sustainability of the road material and their impact in the existing roads, prevent the accidents and pollution.

3. SCOPE:
• Approach road facility for the different roads
• By knowing particular road space acquired by the vehicles can planed for remaining users
• Effectiveness of a traffic control measure
• To check existing, operating service condition of a roadway section.

4. TRAFFIC VOLUME STUDIES
Traffic volume is the number of vehicles crossing a section of road per unit at any selected period. Traffic volume is used as quantity measure of flow; the commonly used units are vehicles per day and vehicles per hour. A complete traffic study may include the classified volume study by recording the volume of various types and classes of traffic, the distribution by direction and turning movements and the distribution of different lanes per unit time. The objects and uses of traffic volume studies are given below:

• Traffic volume is generally accepted as a true measure of the relative importance of roads and in deciding the priority for improvement and expansion.
• Traffic volume study is used in planning, traffic operations and control of existing facilities and also for planning
and designing the new facilities.

- This study is used in the analysis of the traffic patterns and trends.
- Classified volume study is useful in structural design of pavements, in geometric design and in computing roadway capacity.
- Volume distribution study is used in planning one-way streets and other regulatory measures.
- Turning movement study is used in the design of intersections, in planning signals timings, channelization and other control devices.
- Pedestrian traffic volume study is used for planning sidewalks, crosswalks, subways and pedestrian signals.

There are variations in traffic flow from time to time. Hourly traffic volume varies considerably during the peak hourly volume may be much higher than average week and there are variations with season. Hence if a true picture is to be obtained, the hourly traffic volume should be known along with the patterns of hourly, daily and seasonal variations. In classified traffic volume study, the traffic is truck, passenger cars, cycles, and pedestrian are found separately. The direction of each class of traffic flow is also noted. At intersections the traffic flow in each direction of flow including turning movements are recorded.

**Manual counts**
This method employs a field to record team to record traffic volume on the prescribed record sheets. By this method it is possible to obtain data which cannot be traffic volumes as well as the average daily traffic volume are calculated. This is very commonly adopted due to the specific advantages over other methods.

**Parts of traffic studies: Traffic studies include:**

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**RESULTS**

From the applied Manual Count Method, these are the following results were observed, the data mentioned in the following tables are average of seven days traffic volume.

**DATA**
CONCLUSION
We have studied the traffic volume for a period of one week. There were certain difficulties we have faced like pedestrian crossing, highspeed, improper turnout and traffic rules which is most fatal. As our project is about analyzing and improving traffic system, we have proposed certain things which are as follows:
Road condition must be improved drastically.
- Signaling system (emergency) must be applied.
- The margins of the road side must be properly planned.
- Drainage system should be improved.
- Emergency traffic police service should be applied at turning point during peak hour.
- Continuous improvement or road should be done.

ACKNOWLEDGEMENT
We are very thankful to our guide, PRADEEP N M, for his constant encouragement, guidance and for the continuous support in making this work complete.

REFERENCES
7. Abhishek, et.al, 2018 “Traffic volume measurements of Pune University Road to Paud Phata” IRJE and Technologies, e-ISSN2395-0056