

Analysis of Traffic Census at Sitapura Jaipur

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Abstract—Traffic census and analysis is a counting scheme of vehicles, that's running the length of a road or any junction. The methods that are used for traffic count are, automatic or manual, which are the two methods which are used to acknowledge route that is most used while it also promises to offer a different route due to the high numbers of vehicles which results into traffic jams. Traffic counting scheme gives very important and reliable data which is further valued to help in the calculation of the average annual daily traffic (AADT), especially a symbol to exemplify the volume of the traffic. It also indulges the speed of the vehicle and highlighting peak speeding periods. Better executive of Traffic and duration of the survey to be properly included as urban areas are getting more developed. India gate/RIICO to Haldi Ghati gate is one of the most important stretches that encounter in the NH52 but also is the function for the greater Jaipur Exhibition and Convention Center (JECC). It is also to be considered a place where the whole business hub and social hub takes place. Case examination of Traffic Analysis and the census of the traffic are done for the given area.

Keyword: Annual daily traffic (AADT), Exhibition.

1. INTRODUCTION

Census of the traffic and the analysis is simply an examination that is done to determine statistic, movements, and classifications of vehicles that are running on the road at an accustomed location/region. The particular intelligence can comfort to determine the elemental vehicle rush periods and to elect the impact of expanse in automobile and movement speed of the vehicles on the general population.[1] Various types of measures can be maintained to describe traffic; this study focuses on the data collection of traffic volume, vehicle classification, and weight. This Study presents a data collection of that particular region that can improvise in order to implement a cost-effective vehicle volume and weight monitoring system that complete the needs of local, State and other traffic data users. Understanding and processing for the variations that are present in the traffic flow are necessary,[2] an approximation of travel is to be elaborated and reported. Acquiring a sufficient number of activity volumes to cover the framework is not the main need. [3] Vehicle grouping information is limitlessly helpful for some sorts of investigations, including asphalt outline and support. The case study is focused on the region for the volume of the traffic flow at the peak times and the effect of the volume of the

traffic passing through that specific region/area and the adverse effect on it on the pavement of the roads. [4]

2. METHODOLOGY

There are few methods available for operating traffic volume counts and these are following:

Manual.

Automatic.

Manual methods are generally used to collect the data for affirmation of vehicle order, providing improvements, and the course of the movement. Programmed checks are reliably used in collecting information for affirmation of vehicle according to the hourly purposes, everyday purposes or regular purposes, or for a yearly purpose. This study is important to utilizing the check of time periods for the flow of traffic. The check time period is suggestive for the period of the whole day, for the day of the particular month, and for the particular month of a year which is for the examination territory.[6]

(1) Manual Count Method - It is one of the most utilized methods in which manual tallies requires little remnant of summary at any given area. Manual tallies are used and utilized in the case when the action and cost of computerized accessory are not approved by any mean of purpose. Again manual tallies are customarily utilized for a small amount of required in a day. It is commonly provisional for a manual check for 5, 10 and 15 minutes. Manual checking strategies incorporate:[7]

(2) Automatic Count Method - The programmed check technique gives a guide to gathering liberal measures of the information about the activity. The programmed check includes the routine analysis which is taken One-hour cutback for each one of the hours for 24 hour time period. The analysis may also elongate for a week, month and perhaps for a year. It is seen at some mark that when the tallies are listed for every each hour a day, the apex flow period can be distinguished. Programmed checks are documented by utilizing the following techniques [7]

Portable offsets.

Permanent offsets.

3. OBJECTIVE

Study of traffic volume at a particular location is necessary to full fill the following determination.

Resolve the total traffic entering and exit in the area.

Regulate the thickness and width of a road.

Traffic management intent.

4. USED METHOD AND LOCATION

The volume of the traffic is examined and also composed to choose the number, developments, and groupings of roadway vehicles in a given area. The area is picked in light of the fact that quick development in businesses and foundations in the zone this data can help perceive fundamental stream times choose the effect of extensive vehicles or individuals by walking particular action stream, or report developing volume designs. The length of the analyzing time period depends upon the kind of count being taken period depends upon the kind of count being taken and the normal usage of data recorded. The studies were directed at the passage point and leave purpose of Sitapura (India Gate). The era picked in our examination is 8 am to 10 am incorporated the morning top stream and at 1 pm to 2 pm and 4 pm to 6 pm included night top on 19 and 20 March 2018. The examination was directed by manual activity tallies by tallying the entering and leaving vehicles at the investigation area. [8]

5. MANUAL COUNT METHOD

The most outrageous recognized system for social affairs development volume data is the manual methodology for movement volume count, which includes a relationship of people recording number of vehicles going, on a destined zone, using tally marks. Unrefined data from that document is then made out of array and examination. This system for data social occasion can be complete similar to workforce, yet it is notwithstanding, unequivocal all things considered where vehicles are to be cleared up with different stream recorded solely and at trade also if where estimation procedures cannot be used on account of insufficiency of structure.

6. TRAFFIC CHARACTERIZATION

The varied kinds of automobile introduce in the diversified rush-hour gridlock, with the end goal of this study, were gathered into eight distinct classes as takes after.

Two wheelers (T.W.), includes incorporate engine cycles, bike and scooty.

Three – wheelers (Th.W.), which incorporate Rickshaws, which is a three-wheel standard travel vehicle to convey

travelers. These vehicles are used to convey little amounts of products, Cars including jeeps and little vans, Light business vehicles (LCV) involving inclusive traveler vans, Trucks, Public and transportation buses and bicycle.

As this application analyze with movement stream on high capacity civic roads, animal drawn vehicles were not considered as these vehicles are not permitted or allowed to run on these urban roads.[9]

The normal general measurements if the vehicle writes in our examination depends on IRC limits Practical thought are utilized to future extension and processing future patterns and to oversee movement. The horizontal freedom is the separation to settle protest and leeway kept up by vehicle from the street components are utilized to figure the real parallel freedom between vehicles in light of the kind of the accountable automobile and the automobile as its subordinate. [9]In our examination the reason for decide parallel freedom is to decide the speed of vehicle which is helpful to foundation of wellbeing measure. In our investigation the parallel freedom is decide by taking case, at nil speed, if a car is along a vehicle, at that point the leeway between the vehicles running along the road will be $0.2+0.3=0.5$.

The longitudinal freedom at nil speed can be computed by a similar methodology. The field watched increasing speed rates of the diverse kinds of vehicles are required to compute the time required to cross the convergence so the best possible signs cycle are intended to moderate the roads turned parking lots and hole acknowledgment to build up speed patterns.[10] The increasing speeds rates for the different automobile and its speed ranges are appeared in the table no. 3.

Table 1: Recognized Automobile Dimensions.

Vehicle type	Comprehensive dimension (m)	
	Length(m)	Breadth(m)
Buses	12	2.5
Trucks	16 to 18	2.9
Bicycles	2.0	0.7
Two wheeler	1.5	0.8
Three wheeler	2.7	1.2
Cars	4.5	1.8
LCV	5.2	2.0

Table 2: Minimal and Maximal Oblique Clearance

Vehicle type	Oblique-clearance share(m)	
	Speed = 0 km/h	Speed = 60km/h
Buses	0.5	0.8
Trucks	0.5	0.8
Bicycles	0.3	0.5*
Two wheeler	0.2	0.4
Three wheeler	0.3	0.5
Cars	0.5	0.7
LCV	0.5	0.7

*Maximal speed is 20 km/h

Table 3: Rate of Acceleration for different Categories of Vehicle

Vehicle type	Acceleration rate at various speed range (m/s ²)		
	0-20km/h	20-40km/h	Above 40km/h
Buses	0.90	0.79	0.68
Trucks	0.81	0.56	0.46
Bicycles	0.14	-	-
Two wheeler	1.38	0.83	0.62
Three wheeler	1.05	0.49	0.34
Cars	1.56	0.14	0.98
LCV	0.85	0.47	0.37

7. RESULTS

From the applied Manual Count Method, there are following results were observed.

Table 4. Number of Vehicle (India Gate to Sitapura)

Time	Car Jeep Taxi	Two Wheelers	Bus Truck	Other	Total
9-10am	917	2870	230	90	4107
10-11am	645	1256	150	46	2097
1-2pm	470	800	86	84	1440
4-5pm	392	930	60	74	1456
Total	2424	5856	526	294	-

Table 5: Converted No. of Vehicle (PCU)

Type of vehicle	No. of Vehicle	PCU
Car Jeep Taxi	2424	1.00
Two Wheeler	5856	0.50
Bus Truck	526	3.00
Others	294	2.00

8. CONCLUSION

Following are the vital conclusion drawn in view of study:

Light vehicles (auto, jeep, and so forth) possessed 35% of aggregate vehicle.

Percentage of aggregate wheelers is moderately high

Percentage of open transport is less should be fortified.

PCU estimation of a vehicle altogether changes with change in rush hour gridlock volume.

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