TRAFFIC CONGESTION STUDY WITH A REALITY APPROACH-A REVIEW

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ABSTRACT
TamilNadu has a large number of accident prone zones which has easiest possibility of accidents. This study investigates why Tamilnadu is pronounced as a prime member of accidents. The three main studies of a traffic flow are volume, speed and questionaries. Traffic volume intensity is used to determine the number of vehicles crossing during peak hours and non-peak hours at a particular location. The Spot speed studies are used to determine the speed of the vehicles in the particular location. Questionnaires are for the purpose of gathering information from respondents. To reduce this traffic congestion at chettiped Junction in Chennai. The first thing is to adapt Traffic Signals along with zebra crossing, the second is to implement flyover.

I. INTRODUCTION
India is among the fast-developing nations in the world which have the highest density of public and private vehicles. When traffic is high the vehicles moves slowly and results in traffic congestion. Traffic congestion leads to the consumption of more time, results in more number of accidents. Transportation is carrying civilization to a brighter future. When it sounds 'congestion'. During the morning rush hours, the first thing may people think is delay in work. It causes stress, consumption of more time, waste of fuel and more pollution. Not only in morning but also at the peak hours in evening, it gets late for the people to return home.

I.A. Scope of Traffic Volume Studies:
- Proportion of vehicles suggests whether public or private transport dominates the traffic system. It additionally involves the choice of the road visitors.
- Hourly, daily, each year and seasonal variation of vehicular flows. These are used as the expansion factor for future use.

II. LITERATURE REVIEW
Van Aerden, (1995) studied that Green shields, and Van Aerde Car-Following and Traffic Stream Models. In this investigation, the author, has relates steady-state car-following behavior to macroscopic traffic stream models has concluded that the results clearly show that Traffic move models through shooting both macroscopic and microscopic constant-state visitors behavior for a large range of roadway features and traffic requirements.

Satyanarayana, (2012) studied the effect of traffic volume, its composition and stream speed on passenger car equivalents. In this investigation, the author, has relates the safe and efficient movement of the people and goods is dependent on traffic flow, which is directly connected to the traffic characteristics. The volume, speed and density are the three important things in public transportation.

V.T Hamizh Arasan and Krishnamurthy, (2008) studied the complexity of the vehicular interaction in heterogeneous traffic. In this investigation, the author, has relates the PCU estimate, made via microscopic of simulation, for the exceptional varieties of cars of heterogeneous traffic, and has concluded that the results clearly show that the PCU price of an automobile tremendously alterations with trade in traffic quantity and width of roadway.

Ahmed Al-Kaisy, (2005) studied that developing PCE factors for heavy vehicles on freeways and multilane highways during congestion. In this investigation, the author relates to the mechanism of heavy vehicles’ behavior during congestion and has concluded that the results clearly show that the effect of heavy vehicles on traffic stream behavior under free-flow condition.

Lum K.M, (1998) studied that traffic volume and travel time. In this investigation, the author has...
related speed-flow relationships for radial and ring arterial roads and has concluded that the results clearly show that special reference to the characteristics with traffic flow and the recommended speed-flow models developed using travel time-density relationship.

Marwah and Bhuvanesh, (2000) studied that level of service classification for urban heterogeneous traffic. In this investigation, the author has related the traffic simulation model, model has been successfully calibrated and validated for the urban heterogeneous traffic flow conditions on the Kanpur roads and has concluded that the classification level for the urban areas especially which re heterogeneous.

Chandra, S, (2004) studied that Different sections of urban roads. In this investigation, the author has related the development of simpler techniques for evolving capacity norms, based on observed data and has concluded that the results clearly show that minimizing kerbside parking, controlling pedestrian movements and cross traffic, and separating up and down traffic by barriers.

Prasad N.V, (2009) studied that Central Road Research Institute (CRRI), New Delhi to determine the PCU value for different types of vehicles. In this investigation the author has relates the (speed, density, vehicle-hours etc.) reported based on which PCE values are calculated for different types of vehicles. Present study reviews the various methods have been used to calculate PCE. and has concluded that the results clearly show that Out of the various methods discussed, headway ratio method is currently the most commonly used method for PCE estimation.

Chandra and Sikdar, (2006) studied that PCU for a vehicle type. In this investigation, the author has related to simplify the analysis of mixed traffic on such roads, different types of vehicles are converted into equivalent number of passenger cars by using Passenger Car Unit (PCU) and has concluded that the results clearly show that helpful to traffic engineers and practitioners as PCU values are often required in traffic flow and highway capacity studies.

Arkatkar, (2011) studied the effect of variation of traffic volume. In this investigation the author has relates the field data collected on traffic flow characteristics are used in calibration and validation of the simulation model and has concluded that the results clearly show that the model can replicate the heterogeneous traffic flow on mid-block sections of intercity roads.

Sanjay Kumar Singh, (2001) studied the Road Accident analysis on Patna City. In this investigation the author has relates the Urban Transport facilities is most of the Indian cities are inadequate and deteriorating over the years. The development of public transport system has not kept pace with the public demands both in terms of quality and quantity and has concluded that the results clearly show that the use of undesirable modes such as personalized transport, two wheelers, intermediate public transport mainly three wheelers, is growing at a rapid speed.

E. Elangovan, (2003) studied the Traffic Flow Characteristics using Probe Vehicles. In this investigation the author has relates the large-scale transport infrastructural enhancements are carried out in urban areas and has concluded that the results clearly show that the based on the average speed prevailing at work zone, capacity of the section could be estimated from established speed flow relationship.

Kalaga Ramachandra Rao, (2013) studied the Measuring urban traffic congestion. In this investigation the author relates Traffic congestion has been one of major issues that most metropolises are facing and thus, many measures have been taken to mitigate congestion has concluded that the results clearly show that the traffic congestion wastes time and energy, causes pollution and stress, decreases productivity and imposes costs on society.

Bhaskaran Raman, (2004) studied that Road transportation systems for developing regions. In this investigation the author has relates the Indian road traffic the problems, like congestion, unpredictable travel-time delays and road-accidents, are taking a serious shape and has concluded that the results clearly show that the presence of lane system, relative speed and type of vehicles, presence of freeways, orderly traffic.

Nitin Kumar Jain (2010) studied that Synchronization of Traffic Signals. In this investigation the author has relates the to manage travel demand the intersection should be give least resistance to traffic flow so that the travel time can be minimized and has concluded that the results clearly show that the present requirement of metropolitan cities is to absorb the growing traffic demand but
within the same physical dimension at the intersection.

III. RESULTS AND DISCUSSION

III. A. TRAFFIC VOLUME INTENSITY METHOD:

A.K.M. Abir and Raj Sharma was tabulated the traffic volume intensity in his journal Traffic Volume Study is given below;

<table>
<thead>
<tr>
<th>VEHICLE - Car</th>
<th>AUT HOR NAME</th>
<th>TIME</th>
<th>TOTAL. NO. OF VEHICLES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8am-10am</td>
<td>10am-12pm</td>
</tr>
<tr>
<td>A.K.M. Abir</td>
<td></td>
<td>2040</td>
<td>1052</td>
</tr>
<tr>
<td>Raj Sharma</td>
<td></td>
<td>820</td>
<td>570</td>
</tr>
</tbody>
</table>

The Traffic volume intensity is more during 8.00 am to 10.00 am and there is no traffic during 14pm to 16 pm.

<table>
<thead>
<tr>
<th>VEHICLE - Bus</th>
<th>AUT HOR NAME</th>
<th>TIME</th>
<th>TOTAL. NO. OF VEHICLES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8am-10am</td>
<td>10am-12pm</td>
</tr>
<tr>
<td>A.K.M. Abir</td>
<td></td>
<td>324</td>
<td>164</td>
</tr>
<tr>
<td>Raj Sharma</td>
<td></td>
<td>152</td>
<td>105</td>
</tr>
</tbody>
</table>

The Traffic volume intensity is more during 12.00 pm to 14.00 pm and there is no traffic during 14 to 16 pm.

<table>
<thead>
<tr>
<th>VEHICLE - Bike</th>
<th>AUT HOR NAME</th>
<th>TIME</th>
<th>TOTAL. NO. OF VEHICLES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8am-10am</td>
<td>10am-12pm</td>
</tr>
<tr>
<td>A.K.M. Abir</td>
<td></td>
<td>240</td>
<td>172</td>
</tr>
<tr>
<td>Raj</td>
<td></td>
<td>3180</td>
<td>1320</td>
</tr>
</tbody>
</table>

The Traffic volume intensity is more during 8.00 am to 10.00 am and there is no traffic during 14pm to 16 pm.
The Traffic volume intensity is more during 8.00 am to 10.00 am and there is no traffic during 14 to 16 pm.

**III.B. STOPWATCH SPOT SPEED STUDY:**

N. Naveen reddy was tabulated the vehicle speed study in his journal Spot speed and speed delay time:

<table>
<thead>
<tr>
<th>TIME</th>
<th>VEHICLE TYPE</th>
<th>VEHICLE NUMBER</th>
<th>SPEED KM/HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00 TO 10.00AM</td>
<td>BIKE</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>39.565</td>
</tr>
<tr>
<td></td>
<td></td>
<td>36</td>
<td>37.240</td>
</tr>
<tr>
<td></td>
<td></td>
<td>79</td>
<td>42.187</td>
</tr>
<tr>
<td>3.00PM TO 5.00PM</td>
<td>CAR</td>
<td>65</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>43</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21</td>
<td>38.989</td>
</tr>
<tr>
<td></td>
<td></td>
<td>09</td>
<td>41.5</td>
</tr>
<tr>
<td>12.00 TO 2.00PM</td>
<td>TRUCK</td>
<td>12</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>34</td>
<td>42.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>56</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>78</td>
<td>68</td>
</tr>
<tr>
<td>6.00 TO 8.00PM</td>
<td>BUS</td>
<td>90</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>01</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td></td>
<td>46</td>
<td>39.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>78</td>
<td>73.55</td>
</tr>
</tbody>
</table>

The Traffic volume intensity is more during 10.00 am to 12.00pm and there is no traffic during 14 to 16 pm.
Xing Yong was tabulated the vehicle speed study in his journal. The Vehicle Speed and Acceleration Profile study is given below:

### III.C. QUESTIONNAIRE SURVEY

M. Darbari was framed the following questions related to the locality in his journal. The Empirical analysis of urban traffic system given below:

Name: ________________

1. (a) Place:

(b) Age:

2. Day of the Week / Date / Time: _______/ ____/____

3. Respondent Mode of Transport

(a) Motorcycle / Scooter (4)

(b) Personal Car (16)

(c) Auto/ Tempo (6)

(d) Bus (11)

(e) Rickshaw (2)

(f) Cycle (3)

4 (I) what is the Passenger Car Unit (PCU) 1 2 3 More than 4 (II) How many Times you do this journey?

(a) Six Days/ Week (6)

(b) Less than Six days/ Week (18)

(c) This is the first time (2)

(d) I am a driver (23)

5. Do you feel unsafe on any part of this journey? Yes (10) No (17)

6. If “Yes”, what are the reasons of feeling unsafe. (more than one option is allowed).

(a) Too much traffic congestion (17)

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**Vehicle Speed and Acceleration Profile**

<table>
<thead>
<tr>
<th>Vehicle type</th>
<th>TRAVEL TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A-B</td>
</tr>
<tr>
<td>BIKE</td>
<td>2.06</td>
</tr>
<tr>
<td>CAR</td>
<td>2.21</td>
</tr>
<tr>
<td>BUS</td>
<td>1.19</td>
</tr>
<tr>
<td>TRUCK</td>
<td>3.59</td>
</tr>
</tbody>
</table>

**Empirical analysis of urban traffic system**

<table>
<thead>
<tr>
<th>TIME</th>
<th>8 TO 10 AM</th>
<th>10 TO 12 PM</th>
<th>12 TO 2 PM</th>
<th>2 TO 4 PM</th>
<th>4 TO 6 PM</th>
<th>6 TO 8 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIKE</td>
<td>45</td>
<td>39.5</td>
<td>37.2</td>
<td>42.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAR</td>
<td>42.4</td>
<td>39.5</td>
<td>37.2</td>
<td>42.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS</td>
<td>39.5</td>
<td>37.2</td>
<td>42.18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRUCK</td>
<td>37.2</td>
<td>42.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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7. What could be your suggestions to make journey safer (You can tick more than one).

(a) Designate leaves according to the type of Vehicle (13)
(b) Improve Street Lightening (5)
(c) Providing Road Dividers (11)
(d) Safe Crossing points (19)
(e) No opinion (2)
(f) Others (9)

8. Mark any dangerous spot on your route?

Christopher was framed the following questions related to the locality in his journal the effect of traffic congestion on employee productivity in Victoria island is given below;

1. Do you drive to work?
   (A) Yes (22)
   (B) No (3)

2. Where do you live?
   (A) Yuba/EluteMitta (3)
   (B) Surlier/Mushin (1)
   (C) Mile 2/Festal (2)
   (D) VI/Kofi (7)

3. Across the environment, traffic congestion is a big problem to areas? How?
   (A) Severe Problem (21)
   (B) Not much severe (3)
   (C) Not even a problem (1)

4. Where is your office located?
   (A) Columba (3)
   (B) Alamo (4)
   (C) AroseAdigun (2)
   (D) Wallow Way (2)
   (E) Lecky/Ajax (4)
   (F) Ikeas/Megiddo (8)

5. With traffic, how long does it take you to get to work?
   (A) 15-25mins (15)
   (B) 35 – 55mins (6)
   (C) 1 – 2hrs (3)
   (D) 3 – 4hrs (0)

6. How often did people caught in traffic on island?
   (A) More Frequently (11)
   (B) Frequently (7)
   (C) Seldom (2)
7. How long does it take to work without traffic?
   (A) 5-10mins (16)
   (B) 15-25mins (6)
   (C) 45m-60mins (2)
   (D) 45-65mins (0)
   (E) 1-2hrs (0)

8. What causes traffic congestion in opinion of the people?
   (A) More car and buses (6)
   (B) Infrastructure (12)
   (C) Road Routes (5)

9. Is Traffic Congestion has a great impact on productivity?
   (A) Agree (23)
   (B) Disagree (0)
   (D) Indifferent (0)

10. Traffic Congestion leads to low productivity?
    (A) Yes (24)
    (B) No (1)

11. Inability to get to work on time has a significant impact on your daily output
    (A) Yes (23)
    (B) No

12. Did Traffic Congestion plays the major role in cities?
    (A) Yes (22)

IV. CONCLUSION
The numbers of bikes travelling are more when compared to autos and cars. The number of autos and cars are more when compared to buses. So, if numbers of buses are increased, then the dependency on Public transports increases. This will make decrease in number of personal vehicles. Hence the congestion gets reduced and free Flow of Traffic will be possible. It adds to comfortness of a road user. We are settled on a suggestion that if the No. of buses could be increased then the traffic system would become efficient. So large modification is recommended in the public transportation. Improving better road routes, infrastructures and provide traffic signals. According to the structure of the road, the proper suggestions are adapted.

REFERENCE

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