MANTECH Publications

Journal of Transportation Engineering and Its Applications
Volume 1 Issue 3 September - December, 2016

A Case Study on "Analysis of Traffic Congestion atIntersection"

Mani Mahesh

Assistant Professor of Civil EngineeringDept.

MIT Moradabad

Corresponding Author -*manimahesht@gmail.com*

Abstract

In present condition it has seen that a road traffic system is a very complex system. In this traffic system, human participation plays a very vital role directly. Without involvement of the human population it is not possible to study the traffic system. The present study has been carried out on selected points like signal intersection, parking facilities, rotary, market and road analysis for Jalandhar city. The data collected within the radius of 5km on specific places, BMC Chowk, Gurunanak chouk, Ambedkar Chowk, Football Chowk. Kapurthala Chouk, HMV Chowk. This study has been carried out because lots of accidents are happening in present days so this study helps to improve the facility which are required by humans like traffic safety, pedestrian facility, signal facility, rotary facility etc. so we can reduce the accidentalrate.

Keywords: *Traffic analysis, Intersection study, Accidentstudy*

INTRODUCTION

Traffic is formally organized in many jurisdictions, with marked lanes, junctions, intersections, interchanges, traffic signals, or signs. Traffic is often classified by type: heavy motor vehicle (e.g., car, truck); other vehicle (e.g., moped, bicycle) & pedestrian. Different classes may share speed limits and easement, or may be segregated. Some jurisdictions may have very detailed and complex rules of the road while others rely more on drivers' common sense and willingness to cooperate. In some places traffic volume is consistently, extremely large, either during periods of time referred to as rush hour or perpetually [1-4]. Exceptionally, traffic upstream of a vehicular collision or an obstruction, such as construction, may also be constrained, resulting in a traffic jam. Such dynamics in

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relation to traffic congestion is known as traffic flow. Traffic engineers sometimes gauge the quality of traffic flow in terms of level of service. The existing road network of the Jalander city is ring and radial, in other words, the roads are radiating outward from the core of the city [5-7]. A series of major roads passes through Jalandhar city which all converge at one point in the centre. It has four National Highways and number of important roads passing through the city. The Bypass road runs from Bidhipur Phatak to PAP Chowk facilitating the traffic not to enter the city. Thus reducing the journey time and increasing the speed. The National Highways and major roads give access to the city and make it a centrally located city with better linkages.

METHODOLOGY

The study is aimed for a feasibility of grade separators along Mahavir Marg passing through all major intersections like BMC Chowk. Guru Nanak Mission Chowk, Ambedkar Chowk, Football Chowk, Kapurthala Chowk and HMV Chowk. In order to fully understand the nature and pattern of traffic / travel movement along the Mahavir Marg, a wide variety of field surveys were carried out along the corridor. Following types of survey were carried out to plan traffic improvement plan for jalandher city [8,9].

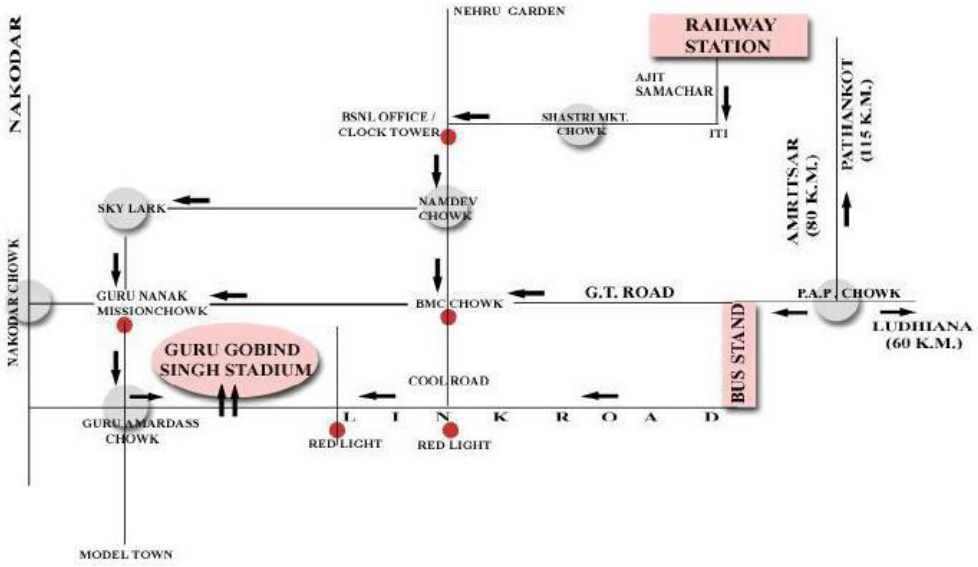


Fig 1: Road Networks of BMC, Guru Nanak and Namdev Chowk

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RESULT

In this case study, according to the data collected it has concluded that the jalandhar city has total road length around 900 km and 200 km of National highway. The annual average growth of jalandhar city is 8 percent.

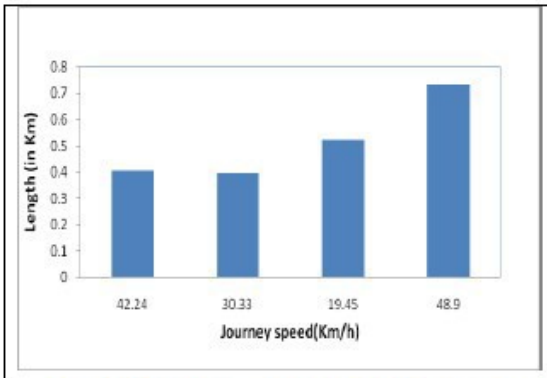


Fig 2: Journey speed with different route length on Jyoti chowk

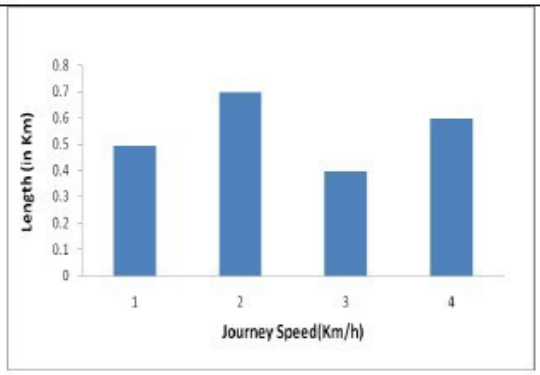


Fig 3: Journey speed with different route length on BMC chowk

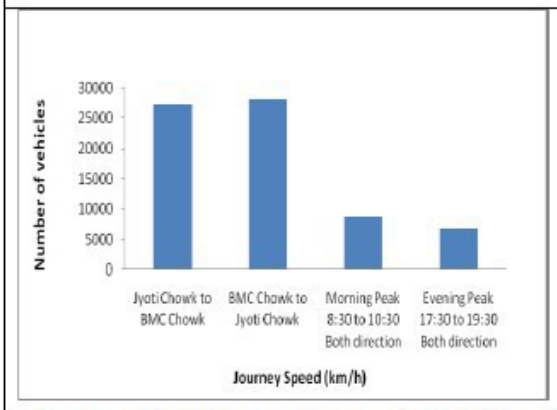


Fig 4: Traffic Composition at BMC chowk

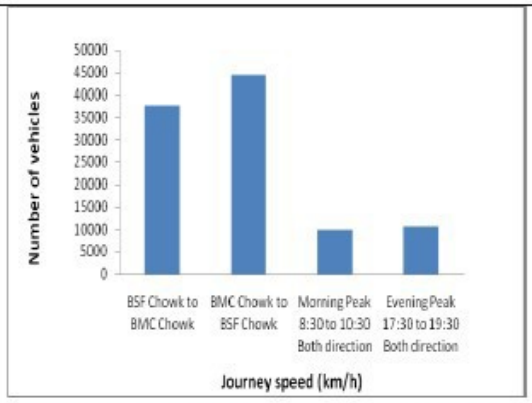


Fig 5: Traffic Composition at BMC chowk

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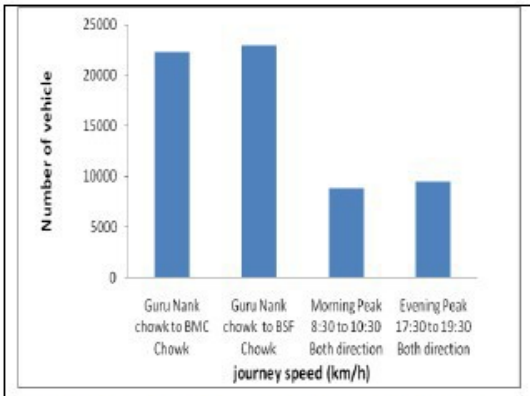


Fig 6: Traffic Composition at BMC chowk

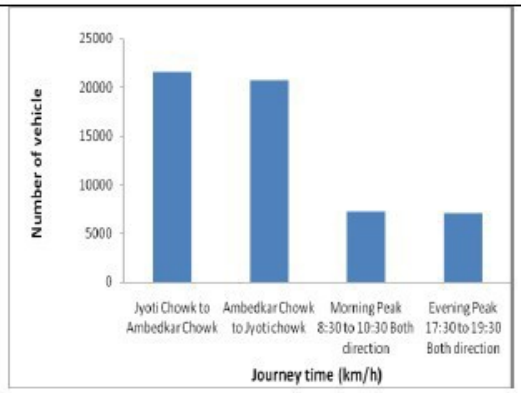


Fig 7: Traffic Composition at Jyoti Chowk

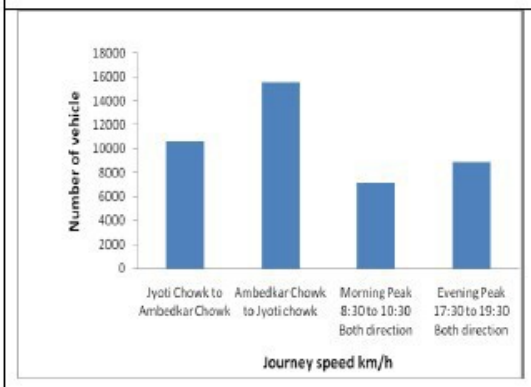


Fig 8: Traffic Composition at Jyoti Chowk

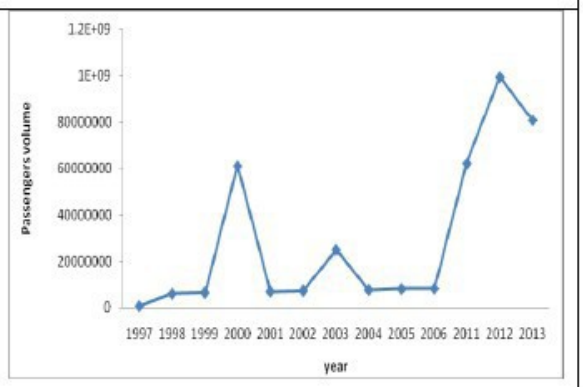


Fig 9: Population density on road

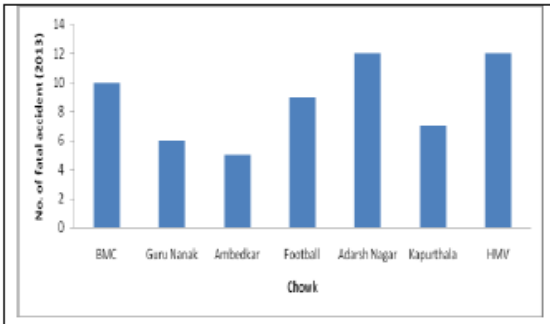


Fig 10: Fatal accident at different chowk in 2013

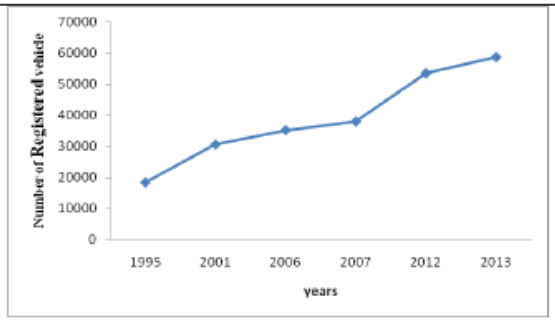


Fig 11: Number of registered vehicle per year

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CONCLUSION

From this study it is concluded that,

1. In jalandhar city there is more that 80 percent of the road have right of way less than 30m.

2. The carriage way width is mostly 14 to 20 m which requires more right of way width that reduce the space required for pedestrian facility.

3. The growth of private vehicle is high and there is no parking facility for these vehicles.

4. The peak hour is from 8 to 10 am, this is due to high population of students and employed persons.

5. The speed of public transport is poor, the maximum speed is up to 18 kmph.

6. The maximum no of accident occur on chowks. The average number of fatal accidents at a chowks in a 2013 is around nine. Generally near about 60 percent of accidents are occurred due to deficiency in road system.

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