

A CASE STUDY ON – “STUDY OF ROAD TRAFFIC & MANAGEMENT AT K K MARKET IN PUNE CITY”

Shubham Deepak Pawar¹, Mr Kunal Pawar²

¹PG Student, Department of Civil Engineering, School Of Engineering and Technology, Sandip University, Mahiravani, Nashik

²Asst. Professor, Department of Civil Engineering, School Of Engineering and Technology, Sandip University, Mahiravani, Nashik

ABSTRACT

The expanding number of vehicles within the city, driving to traffic congestions is the major hurdle in the improvement of the city. Hence there's a need for appropriate street activity request administration for the city. The objectives of the paper to study the different issues confronted by the city for the location K. K. Market, additionally presents arrangement for the activity request administration at the convergences. The think about is based on the street assets and characteristic of the urban activity found from the study done at the intersection for 3 days during the top and non-peak hours. Based on the Vehicular Volume Data and Turning Movement Survey observed at these crossing points, the paper examines the arrangement to the expanding blockage and its impact on the traffic

Keywords: Non-Peak Hours, Peak Hours, Road Traffic Demand Management, Traffic Congestion, Turning Movement Survey, Vehicular Volume Data

INTRODUCTION

Pune is the moment big area within the state of Maharashtra and covers 5.10% of the entire topographical zone of the state. The streets and rail systems interface the locale with the state capital and encompassing area central station. The street organize of the city comprises of Express Interstates, National Interstates, State Highways, Major Locale Roads and town roads. The add up to length of streets within the locale is 13,642 km of roads(2001) of which 39.54%roads have Bituminous surface, 26.05%roads are of water bound macadam surface and 34.41% streets are other surface streets i.e. unmetalled road. Of the overall street length within the area, National Thruways covers 331km street length; State Highways cover 1368 km street length. Nearly all the villages are well associated by water bound Macadam Street. Transport approaches such as street extending, development of flyovers, etc. have as of now been implemented within the city. But the activity congestions still exist as the arrangements don't meet the expanding activity request. The conventional arrangement of “building more streets and building more street framework to oblige the expanding number of vehicles” will not be able to meet the activity request administration of the city. In arrange to move forward the activity request administration and activity arranging of the city, it is necessary to direct the expanding activity request beside the street broadening and street foundation improvement. This will lead to distant better; a much better; a higher; a stronger; an improved a stronger, comfortable, dependable, financial as well as environment-friendly arrangement to the existing problem

In this paper, we have taken K K Market of Pune City, which links to Pune to Satara. Currently the market is catching up in this tenement. K K Market is second most important in Pune. The screen shot from Google maps is as shown below. Because it has cross area, there are merges and separates within the crossing of these three streets. And there will be no orderly development of activity. In this association, there's plausibility for the traffic jams as well as mischances to happen. So there's a really overwhelming necessity for regulation of traffic, as well as deliberate development. To realize this, there is a requirement of signalized cross-section. Because it could be a cross-section of four streets, there's a requirement of a four stage activity signal.

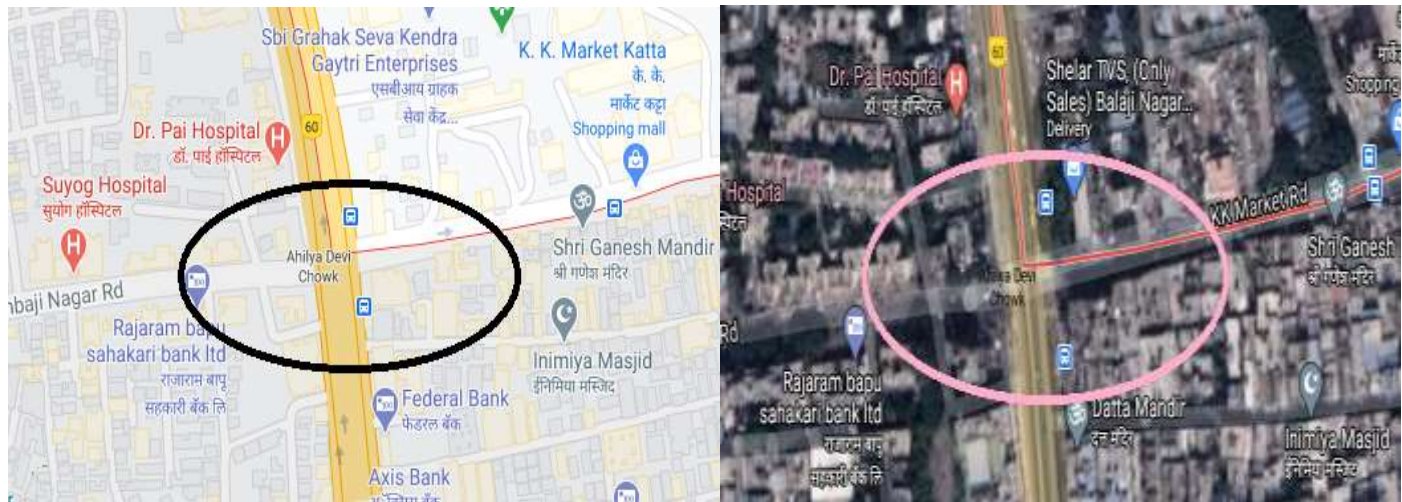


Figure 1: Image of Case study area

LITERATURE REVIEW

The writing study brought numerous advances to the take note for actualizing proficient activity arranging and administration. Expanding activity at the next pace is demonstrating to be a huge issue within the city of Pune. The creating foundation for tackling the traffic issue has not facilitated the issue. In this way, there's a require for compelling activity arranging and administration framework for Pune city[6,9,10].There are different strategies to handle activity such as Activity administration by work stream method, Shrewdly Transport Framework (ITS) for Indian Cities, Shrewdly BRT, eco Move Approach, Street activity clog in Creating World, BRT, Multi-agent framework, and Quantitative issue approach[12].Linear relapse investigation can be utilized to discover the traveller car equivalent values for the crossing point. Video recording can be utilized to decide the precise number of vehicles passing at a crossing point physically [2].

METHODOLOGY

To get it the stream of activity and activity characteristics at the two convergences, different overviews were carried out manually as well as by videos and photographs over a period of three days. The vehicle volume study and the turning development overview were at that point carried out at the two intersections. The information was at that point examined physically utilizing computer application. The overview was conducted for crest times during the morning and evening. The non-top hour amid the evening was moreover overviewed and the recordings of the same were moreover gotten.

A speed and delay overview at the crossing point was too done by moving car eyewitness strategy. The normal delay time required by vehicle at the intersection is famous and the normal speed of travel was too famous within the required formats. From the information gotten, the PCU (Traveller Car Unit/ Traveller Car Equivalent) values are found according to Indian standards. The charts of hourly variety of activity, activity composition at the crossing point were also plotted.

Following values for Passenger Car Equivalent were adopted for the analysis according to IRC 106-1990:

Table1: Passenger Car Equivalent

Type of Vehicle	Passenger Car Equivalent
Trailers	4
Buses& Trucks	2.2
Two Wheelers	0.5

Autos	1.3
Cars	1.4

From the survey done at K K Market intersection, following observations were noted about vehicle flow characteristics:

- (a) For the traffic coming from Pune, 75.% traffic moves toward Katraj and 24.1% traffic moves towards Sambhaji Nagar.
- (b) For the traffic coming from Katraj, 67% traffic moves towards Pune; 25% traffic moves towards K K market shopping Mall and remaining 8% traffic moves towards Sambhaji Nagar.

The variation of the traffic divided in two categories (viz. Public and Private vehicles) in peak and non-peak hours in terms of PCU is found and represented in the figure 2 and figure 3 below:

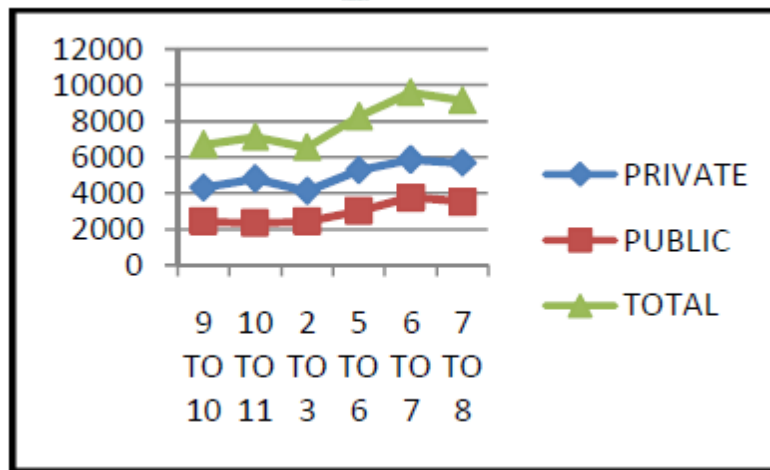


Fig. No. 1 Hourly Variation of Traffic

From the plots of hourly variation found and the turning movement survey done at the crossing point, it was found that, the traffic increases drastically and is at peak during the evening period.

From the survey done at the two intersections, following are the reasons for the traffic congestions observed at the crossing Point:

- (a) The road capacity at the cross Section do not fulfil the increasing number of vehicles and the increasing traffic demand.
- (b) The traffic is improperly organised causing haphazard movement of traffic in all the directions.
- (c) People do not follow the traffic rules and regulations, leading to congestions at the two intersections.
- (d) Lane discipline is not followed by people that hampers the smooth flow of traffic at the intersection.
- (e) Adding to the congestion are the Auto rickshaw drivers that drive very rough, risking the traffic moving around.
- (f) At the Katraj intersection, a large number of trucks, buses and multi axle vehicle flow which cause slow movement of vehicle in traffic thus leading to longer delays at junction creating long queues.
- (g) At the Katraj intersection, the Auto rickshaws and the six seaters occupy a large space which reduces the road width by 3 meters.
- (h) The Bus depot at Katraj also creates chaos at the intersection.

CONCLUSION

From the variation in traffic and the traffic characteristics observed at the Katraj Chowk, it is found that the major traffic volume moves from Pune to Katraj; Pune to Satara; and from Katraj to Pune. The TDM strategies that can be applied at the intersection are:

1. Increasing the Intelligent Transport System by redesigning the signal system at the two intersections to accommodate the increasing traffic.

2. The traditional Transit system at the Katraj intersection needs to be improved and the Depot needs to be improved to facilitate number of buses.

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