



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Issue 5, May 2023

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423

9940 572 462

6381 907 438

ijirset@gmail.com

www.ijirset.com

Pune Traffic Congestion Reality Cause and Regulation a Case Study

Abhay Mane¹, Nikhil Kumavat², Rohit Marne³, Saurabh More⁴, Samarth Salunkhe⁵

U.G. Student, Department of Civil Engineering, Sinhgad Institute of Technology and Science, Narhe, Pune, India¹⁻⁴

Assistant Professor, Department of Civil Engineering, Sinhgad Institute of Technology and Science, Narhe, Pune, India⁵

ABSTRACT: Traffic congestion has been one of the major issues that most metropolises are facing in spite of measures being taken to mitigate and reduce it. In the recent past, traffic congestion has emerged as one of the main challenge for engineers, planners and policy makers in urban areas. The main focus of this study is aimed at understanding the recurring urban congestion, its measurement and mitigation. Literature review on this problem reveals some interesting insights. One of the important outcome was that there is no single, broadly accepted definition of traffic congestion. Traffic congestion can generally be defined as excess of demand for road travel. Many professionals and organizations have defined congestion in different ways based on variety of criteria. There have been attempts to develop congestion measurement indices for heavily motorised countries. In less motorised countries, there are not many documented studies on how to measure congestion and plan for its mitigation. Identification of traffic congestion threshold is an essential requirement for defining the congestion and suggesting appropriate mitigation measures.

KEYWORDS: Pune Traffic Congestion, Hinjewadi IT Park road Congestion, Traffic Volume Study, Pune Metro

I. INTRODUCTION

According to the Oxford Dictionary, A traffic jam is defined as “a long line of vehicles that cannot move forward because there is too much traffic, or because the road is blocked by something.”

Nowadays, transportation leads to a number of problems with traffic congestion being one of the most burning issues in every territory of the world. Traffic congestion is a normal phenomenon associated with transportation, especially in urban areas where the population density is high. To tackle this problem, every country is approaching differently according to their country’s situation regarding population and needs, and solving their transportation problems within their capabilities.

According to the World Bank, United States Census Bureau the population of India recorded in 2017 was found to be 1.34 Billion, the second largest populated country in the world. And Indians everyday face the problem of traffic congestion, wasting hours of their lives. To be precise, On average travellers in India spend 1.5 hours more on their daily commutes than their counterparts in other Asian cities during peak traffic times according to report released by The Boston Consulting Group (BCG) and commissioned by Uber. In fact, Transport demand in India has increased by almost eight times since the 1980s as rapid economic development and increasing wealth among households has led to higher vehicle ownership. This is higher than anywhere else in the Asia-Pacific region, according to BCG.

Pune, the second largest city in Maharashtra and the ninth most populous city in the country is one of India’s most famed metropolitan hubs, also being known as the "Oxford of the East" due to the presence of several well-known educational institutions. In one of its document on Smart City project, the Pune Municipal Corporation (PMC) states that the city ‘aspires to become global urban centre’.

II. RELATEDWORK

Road Width Calculation, Road width calculation, out of the 30m road the percentage of -Cariage-way-55%, Footpath/Boulevard-25%, Cycle Track-20%, Traffic Volume Survey, Calculation and Interpretation of Traffic Volume



Count, From the traffic volume count above the percentage of each vehicle class contributing to the traffic is given as Pedestrian = 8.88%, O, Bicycle = 0.49%, wheeler = 56.64%, wheeler = 21.77%, Bus/truck/auto = 12.22%

IV. METHODOLOGY

Traffic volume study can be defined as the quantity of vehicles crossing a particular cross section of road per unit time at any selected period or location.

Traffic Data Collection is basic requirements for transport planning. Traffic Data forms an integral part of national economics and such knowledge is essential in drawing up a rational transport policy for movement of passengers and goods by both government and the private sectors. Traffic Volume Count is counting of number of vehicles passing through a road over a period of time. It is usually expressed in terms of Passenger Car Unit (PCU) and measured to calculate Level of Service of the road and related attributes like congestion, carrying capacity, V/C Ratio, identification of peak hour or extended peak hour etc. Traffic volume count is usually done as a part of transportation surveys, Traffic Volume Count can be classified or unclassified.

V. EXPERIMENTAL RESULTS

Strict lane management, Promotions of Traffic rules, Area licensing system, Pin Pointing the main problem, Separate two wheeler lane.

VI. RESULT

As seen and observed in traffic volume count the number of two wheeler are almost 60% of the total vehicles on the roadway. The traffic congestion survey as well as the general interview with pedestrians also indicated that two wheelers cause the most disturbance.

Final / Main Solution Separate two wheeler lane

As seen and observed in traffic volume count the number of two wheeler are more than 56% of the total vehicles on the roadway.

In Pune, the increase in the number of two wheeler vehicles and improper management of vehicular traffic are the prime causes of traffic congestion. Despite implementing harsher, more strict rules, the results are not desirable. The major problem in this case are two wheelers. Bicycles account for 0.5 PCU value according to the Indian Road Congress they contribute to almost 0.5% of the traffic volume. On the other hand, two wheelers also account for just 0.5 PCU value according to the Indian Road Congress, they are responsible for almost 60% of the traffic volume. But a separate lane is provided for bicycles which contribute to only 0.5% of the traffic volume.

This area can be fully utilized by the two wheelers. Separate lanes can be established to reduce the traffic congestion caused by the two wheelers. As the two wheelers are either spread out on the road or mixed in traffic, and are creating voids on the road. Resulting in disturbance caused to the other PCU values for different vehicular classes. So, a separate lane should be provided for the two wheelers of appropriate width so that the other vehicular classes are not disturbed which will ultimately ensure continuous flow of traffic.

VII. CONCLUSION

Traffic congestion is a problem not only faced by our country but all around the world. Congestion often reduces regional economic health; it causes delays, which may result in late arrival for education, meetings and employment, ultimately resulting in lost business, disciplinary action or other personal losses. Road congestion has a great impact on wasting fuel which increases air pollution and carbon dioxide emissions.

This work aims to develop a solution for traffic congestion taking place in Hinjewadi IT Road an arterial road of Pune City.

The main cause of traffic is the management of two wheelers, which account for 60% of the total PCU. Hence, by providing a separate lane for two wheelers, 60 % traffic will be diverted on Hinjewadi IT Road. Also by diverting the main cause of traffic, the sub-causes will also not be a problem and ultimately increase the spot speed of that particular area.



|| Volume 12, Issue 5, May 2023 ||

| DOI:10.15680/IJIRSET.2023.1205418 |

REFERENCES

1. Dr. S.K. Sharma Published by S. Chand, (revised edition) “Principles, practice and design of Highway Engineering including airport pavements ”. Chapter 4 – Traffic engineering.
2. Survey: Traffic Volume Count 2017. The Survey for Traffic Volume Count was conducted by - iTrans, PDA & CEE in Consortium, For P.M.C. (Pune Municipal Cooperation)
3. H. M. Zhang* “A Theory Of Nonequilibrium Traffic Flow” The University of Iowa, Iowa City, IA 52242, U.S.A.



INNO SPACE
SJIF Scientific Journal Impact Factor
Impact Factor: 8.423



ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

9940 572 462 **6381 907 438** **ijirset@gmail.com**



www.ijirset.com

Scan to save the contact details