Multilane Highway and Approach to Reduce the Traffic Congestion

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Abstract

Traffic congestion is a major public issue. In this paper analysis is carried on traffic congestion issues in Nagpur city is identified and studied for finding out the impacts and solution of causes. The increase in the no. of vehicles on the roads has caused a major reason the loss of lives. Traffic congestion is possibility of road accidents because of improper traffic management. To avoid road accidents and to save human life and to optimize proper solution for congestion. This paper focus has only been on traffic congestion measures. A review is find out, based on measurement such as volume, density and speed. Traffic congestion is the situation on road networks that occurs as their use increase, and is characterized by slow speed, long trip timings, and high vehicular queuing. It is the significant reason in many parts of the city. The reason behind traffic congestion includes, inadequacy of traffic police, improper planning of city, improper lane management, increasing number of vehicle, narrow roads, illegal parking. Traffic congestion use of traffic management system which guide traffic, college and school opening times arranged to avoid rush hour congestion and other includes driver behavior speed limit, lane filtering, traffic light system and alternate route. Traffic congestion is global as well as problem. In order to reduce traffic congestion to the high possible level.

Keywords: Traffic Congestion; Multilane Highways; Congestion Measurement

I. INTRODUCTION

Traffic congestion has been one of major public policy issues. This paper presents an analysis into traffic congestion on multilane highways. Urban congestion is linked to the difference between the traffic system performance and how the traffic system actually performs. Urban congestion reflects conditions of slow driving speeds, long travel timing and high traffic volumes and creates negative factors on the quality of life. Due to congestion, there is possibility of road accidents because of low traffic management. Traffic congestion is condition on road networks. Congestion is characterized by lower driving speeds; longer trip timings, high traffic volumes. Traffic congestion poses a challenge for all large urban areas. When traffic is great enough such that the connect between vehicles slows the speed of the streams, this result in traffic congestion.

Traffic congestion takes on many different points and congestion is caused by many faces.

1) What is congestion?
2) What are the impacts?
3) What are the causes of congestion?
4) Major problem of congestion?
5) Sources of congestion?
6) Negative impacts?

1) What is congestion?
Traffic congestion is not essentially a problem. It is the solution to our mobility problem. Our system requires that people go to school, people go to work and run errands during about the same times so they can interact with each other.

2) What are the impacts?
Congestion involves slower speeds, longer travel times, queuing and generate multiple impacts on urban causes.

3) What are the causes of congestion?
Congestion includes low road space, traffic rule violation, and increased population, improper maintenance of roads, inadequate traffic management, and increase in no. of vehicles users.

4) Major problem of congestion?
1) Over population
2) Inadequate and unplanned road
3) Poor roadway
4) Insufficient parking arrangement.
5) Insufficient road blockage

5) Sources of congestion?
Main sources - percentages
- Bottleneck condition – 40%
- Traffic incidents – 25%
- Work zones - 10%
- Bad weather – 15%
- Poor signal timing – 5%
- Special events – 5%

6) Negative impacts?
Negative impacts are wasting time, delays, pollutions, health of motorist, emergencies etc.

II. LITERATURE REVIEW:

A. Paper:
Potential freeway congestion severity measure: impact of continuous congestion patterns.
Authors: “Jungwook Jun and In-Kyu Lim.”
Based on this study, these congestion measures provided different results of the congestion for even the same interstate highway segment, which means that the use of a single measure might not give a reliable result.

B. Paper:
Road traffic congestion and crash severity.
Authors: “Mohammed A. Quddus, Chao Wang, and Stephen G. Ison.”
Previous studies have employed count data models either Poisson or negative binomials and their extensions while developing a relationship between the frequency of traffic crashes and traffic flow or density as a proxy for traffic congestion.

C. Paper:
Improvement of congestion detection on expressways.
Authors: “Masato Iwasaki, Masaki Koshi and Izumi Okura”
This paper develops a method of improving congestion detection in urban traffic surveillance and control systems. When developing motorway traffic surveillance and accurate congestion detection is often difficult or impossible because of the disturbances due to the oscillation of congested traffic flow.

D. Paper:
Modeling duration of urban traffic congestion.
Authors: “Antony Stathopoulos and Matthew G. Karlaftis.”
This paper uses the principles of duration modeling to address an important question: given the onset of congestion, how long will it last? As such, the goal of this paper is to propose an approach for estimating the duration of congestion on a given road and the probability that, given its onset, congestion will end during the time period.

E. Paper:
Estimating the effects of traffic congestion on fuel consumption and vehicle emission based on acceleration noise.
Authors: “I. D. Greenwood R. C. M. Dunn and R. R. Raine”
The model presented in this paper takes a middle ground approach between the detailed micro simulation approach that is most appealing to the traffic engineer and the traditional highway development engineers’ approach of ignoring traffic congestion.

III. CONCLUSIONS

Traffic congestion is a global problem as well as local problem. Traffic congestion can be ameliorated by embarking on various strategies such as road capacity expansion, improved road structures, restricting routes for Rickshaw, financial penalty to the traffic law breakers and strict lane management, proper traffic management system along with appropriate implementation of traffic rules is necessary to mitigate the problems of traffic congestion.

REFERENCES