Traffic Problems on Jawahar Marg Indore and Alternative Solution

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Abstract *This report presents the prevailing traffic conditions at Jawahar Marg in Indore which is one of the fastest growing city in India. Indore is a rapid growing city suffering from traffic congestion, vehicular pollution and accidents due to traffic. The aim of this report is to investigate problems and to suggest necessary solutions. The analysis is based on practical observations, data has been collected of day hours at the selected major intersection. Volume conversion is carried out by adopting PCU values from IRC recommendations. Various other traffic flow characteristics are calculated from empirical formula proposed by Transportation Road Research Lab (TRL), New Delhi. Various alternatives has been referred for the solution and list of various other proposals has been enclosed in this paper.*
Keywords *— Signalization, Static road divider, PCU, IRC, Traffic congestion, vehicular pollution and Peak hours.*

I.   INTRODUCTION

1.1   About Indore

Indore is the most populous and the largest city in the Indian state of Madhya Pradesh. It serves as the headquarters of both Indore District and Indore Division. It is also considered as an education hub of the state and has campuses of both the Indian Institute of Technology and the Indian Institute of Management. Located on the southern edge of Malwa Plateau, at an average altitude of 550 meters (1,800 ft.) above sea level, it has the highest elevation among major cities of Central India. The city is 190 km (120 mi) west of the state capital of Bhopal. Indore had a census-estimated 2011 population of 1,994,397 (municipal corporation) and 2,170,295 (urban agglomeration).The city is distributed over a land area of just 530 square kilometers (200 sq. mi), making Indore the most densely populated major city in the central province. It comes under Tier 2 cities in India.

Indore traces its roots to its 16th century founding as a trading hub between the Deccan and Delhi. The city and its surroundings came under Hindu Maratha Empire on 18 May 1724 after Maratha Peshwa Baji Rao I assumed the full control of Malwa. During the days of the British Raj, Indore State was a 19 Gun Salute (21 locally) princely state (a rare high rank) ruled by the Maratha Holkar dynasty, until they acceded to the Union of India. Indore served as the capital of the Madhya Bharat from 1950 until 1956.

1.2   About Jawahar Marg

Jawahar Marg, which passes through the heart of Indore, It is the main charm of the city. The whole route is also known as 'Heart line' of Indore, which is used by over thousands of vehicles every day. Jawahar Marg connects rajmohalla, narsingh bazaar square, mukeripura square, nandlalpura square, Patel Bridge. It is one of the busiest routes of Indore. It subtends its one end towards the Gangwal bus stand and other Sarwate station. It leads to the most important commercial sector of Indore. It connects to the various major streets of commercial market like bartan bazaar, cloth market, marothiya bazaar, Itwaria bazaar, imli bazaar, shitlamata bazaar, sarafa bazaar, siyaganj, ranipura, etc. Jawahar Marg also connects to the Rajwada which is considered to be the heart of the city. It also has some historical places like temples, mosques Gurudwara, monuments etc. It is the route which connects biggest shopping markets of Indore so there is heavy amount of traffic coming in the area which leads to the enhancement of traffic congestion and parking problems. Traffic plying comprises of through traffic between the Patel Bridge and Bhagat Singh chowk and local traffic getting generated due to business activities and residential area along the road.

1.3   Literature Review

Date: 13 October 2017

Location: Pune Traffic congestion is a major urban transport problem .Due to traffic congestion there is possibility of accidents because of poor traffic management. To eliminate road accidents and to save precious human life it is essential to find proper solution for traffic congestion. In this paper traffic congestion problem in Talegaon Dabhade, Tal-Maval. Dist.-Pune is identified and studied for finding out the causes and proposed solution of it. In the recent years there has been a considerable loss due to the accidents to the precious human life and to the vehicles to some extend in Talegaon Dabhade. KEY WORDS: Expressway, Traffic Congestion, Intelligent Transport Systems (ITS)

Date: 13 November 2007

Location: University of Pune, Maharashtra Author Name: Prof. Shekhar Rahane, Ass. Prof. U R Saharkar Traffic is a major problem in the modern era with the increase in population there is the increase in the number of vehicles, road users which end in congestion of traffic. The static road infrastructure is almost the same and unable to cope with changes like congestion, unpredictable travel time, delay and road accidents that taking a serious shape and due to this there is need to control the road traffic with help of traffic control optimizer. In spite of measures being taken to migrate and reduce traffic, it becomes major concerned faced by the metropolitan cities during the planning of cities it has emerged as one of the main challenges for developing cities. To find out appropriate measures there is the necessity of identify magnitude of traffic congestion. The construction of new road or widening of existing road is not feasible every time it will result in additional traffic congestion the total available space within the city for the construction of the road, railway, and other transportation is restricted. This study focuses on the implementation of movable traffic dividers to solve the traffic congestion problem in metropolitan cities. KEYWORDS: Static road divider, Traffic congestion, Peak hours, Movable road divider, Road widening, Road efficiency.

II. Survey and Methodology

2.1 Site Observation at Jawahar Marg

Observation of Jawahar Marg of length 3.20KM, total junction along the road, Spacing varying from 35 to 100m.The black top available width ranging from 14 to 17.60 m without median .On both side of Jawahar Marg there exits 3 to 4 storied building almost throughout the project length. There are three Hindu temples and a mosque in the alignment of the road. Overhead electric lines are running throughout the project length and the number of transformer are also there, which should be required to relocate. Among this utilities like electric lines, electric transformers, head pumps, name board and telephone lines. Some of them may require shifting.

2.2   Weekly volume count survey of vehicular traffic & pedestrian

●   The volume of traffic is count using the road in given interval of time and it is also termed as flow and it is expressed in Vehicle per hour.

●   When the traffic is composed of number of vehicle, it is normal practice to convert the flow in to equivalent passenger car unit (PCU) by using certain equivalent factors. The flow is expressed as PCU per hour.

III. Result and Discussion

3.1 Separation of land through divider

The median strip or central reservation is the reserved area that separates opposing lanes of traffic on divided roadways, such as divided highways, dual carriageways, freeways, and motorways. The term also applies to divided roadways other than highways, such as some major streets in urban or suburban areas. The reserved area may simply be paved, but commonly it is adapted to other functions; for example, it may accommodate decorative landscaping, trees, a median barrier or railway, rapid transit, light rail or streetcar lines.

3.2   Problems without divider on the road –

●   Overtaking is being done very rough that the traffic of the opposite lane gets disturbed.

●   Improper intersections of vehicle at any point of the road causes accidents and traffic jam.

●   Sometimes due to the more width of the road people park their vehicles on the half lane of the road which causes congestion, if divider is provided then due to decreased width of the road parking will not be done alongside the road.

●   Intersections of the roads joining the Jawahar Marg are one way and Jawahar Marg itself is two way , at the same intersection the road coming from the opposite direction is also one way which may cause accidents and congestion, If we provide divider then the lanes will act like one way only hence improving the traffic condition.

3.3   Traffic Signals

Traffic control signals are devices placed along, beside, or above a roadway to guide, warn, and regulate the flow of traffic, which includes motor vehicles, motorcycles, bicycles, pedestrians, and other road users. RED—a red signal light means STOP.

3.3.1 Advantages of traffic signals:

Traffic signals control vehicle and pedestrian traffic by assigning priorities to various traffic movements to influence traffic flow.

Properly designed, located and maintained traffic signals have one or more of these advantages:

● Provide for orderly movement of traffic;
● Increase traffic-handling capacity of an intersection;
● Reduce frequency and severity of certain types of crashes, especially right angle collisions;
● Provide for continuous movement of traffic at a definite speed along a given route;
● Interrupt heavy traffic at intervals to permit other vehicles or pedestrians

Disadvantages of traffic signals:

Traffic signals are not a solution for all traffic problems at intersections, and unwarranted signals can adversely affect the safety and efficiency of traffic by causing one or more of the following:

● Excessive delay;
● Increased traffic congestion, air pollution and gasoline consumption;
● Disobedience of signals;
● Increased use of less adequate streets to avoid traffic signals;
● Increased frequency of crashes, especially rear-end collisions

3.4   Alternate Route

3.4.1   Suggested alternate routes for Jawahar Marg:

● Route 1 (Via Lal Bagh Square) (Route Length-4.9 Km)

RAJ MOHALLA- GANGWAL BUS STAND -MHOW NAKA -LAL BAGH SQUARE JANTA COLONY-COLLECTRATE -MOTI TABELA –RANIPURAMAHAL KACHEHRI - "GADI ADDA -JUNI INDORE LINE -PATEL BRIDGE.

● Route 2 (Via Nagar Nigam) (Route Length – 4.2 Km)

RAJ MOHALLA - ITWARIA BAZAAR - CLOTH MARKET - BADWALI CHOWK - NETAJI SHUBHASH CHAND MARG - IMLI BAZAAR - MARTANDCHOWK - NAGAR NIGAM SQUARE - JAIL ROAD – KOTHARI MARKET - SIYAGANJ - PATEL BRIDGE.

● Main Route (Via Nand Lal Pura) (Route Length – 3.2 Km)

JAGAMPURA- MUKERIPURA-RAJ MOHALLA SQUARE)- NARSINGH BAZAAR SQURE- BAMBAI BAZAAR SQURE - GURUDWARA - NAND LAL - TARKESHWAR SHIV MANDIR PURA SQURE-SANJAY SETU - RANIPURA - PATEL BRIDGE.

3.4.1.1 Advantages of Alternate Route (Via Lal Bagh)

● This route has more widen roads than route going through cloth market.
● The route is free from commercial markets hence travelling is easier through this route.
● The route further connects to the Airport, hence can handle the traffic going to the airport.
● The route connects Gumashta Nagar and other major residential areas to Palasia and Vijaynagar & Some Shopping malls, hence proves advantageous for such traffic.

3.4.1.2 Disadvantages of Alternate Route (Via Lal Bagh)

● The route is quite longer as compared to route no. 2.
● This route is passing through some residential areas hence there will be lot of problems to be faced by the residents due to increase in traffic.
● The route passes from small scale industrial area like Gadi adda and Loha mandi, hence becomes congested at such areas.

3.4.1.3 Advantages of Route 2 (Via Nagar Nigam)

● The route is shorter in length as compared to route no. 1(via Lal Bagh).
● This route is free from residential areas hence there will be less problems to be faced by the people due to increase in traffic.
● The road has sufficient possibility to be widen hence it can handle traffic more efficiently than another alternate route.
● This route passes from large no. of commercial markets like cloth market, Kothari market and Sia Ganj.

3.4.1.4 Disadvantages of Route 2 (Via Nagar Nigam)
●   This route has less widen roads than route going through Lal Bagh.
●   The route is mainly commercial market hence travelling is hectic through this route because of illegal occupancy of road edges by the shop keepers.
●   The route is full of road sided illegal parking hence width of road is shortened.
●   The road is not suitable for such a large traffic handling at some portions like commercial regions so traffic jams may take place.

IV.   Conclusion

Indore is one of fastest developing city of India and Jawahar Marg being one of the busiest route of the city so it's a mark of necessity to deal with the traffic congestion of the route and provide proper traffic flow over the route. For the same cause various suggestions are being provided.

By far concluding all the aspects to the certain points which can demolish the several Problems arising on the Jawahar Marg is mainly through providing median barrier through the appropriate locations at the Jawahar Marg. By providing proper signalization traffic can be fairly regulated to great extent.

Alternate route is not proper option to the cause of traffic congestion over Jawahar Marg as the width of route varies which may be insufficient for the road users to cross through the entire road length. There are several problems in the provision of alternate route, the basic length of the route increases and the time travel by the road users also increase.

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