

## DESIGN OF TRAFFIC CONTROL SYSTEM

MR. BAVISKAR CHETAN RAMESH<sup>1</sup>

MR. JAGTAP DHIRAJ RAJENDRA<sup>2</sup>

MS. JARAD MANASI RAJENDRA<sup>3</sup>

MR. NALAWADE PRASANNA CHANDRAKANT<sup>4</sup>

MR. PATIL MANISH VIKAS<sup>5</sup>

MR. GODBOLE ANANTKUMAR MANIK<sup>6</sup>

<sup>1,2,3,4,5</sup>Final Year of Civil Engineering, SCSCOE college of engineering, Dhangawadi, Bhor  
Pune, India.

[chetan22kar93@gmail.com](mailto:chetan22kar93@gmail.com)

[dhirajagtap09@gmail.com](mailto:dhirajagtap09@gmail.com)

[manasijarad.mj@gmail.com](mailto:manasijarad.mj@gmail.com)

[prasannanalawade59@gmail.com](mailto:prasannanalawade59@gmail.com)

[manishpatil3493@gmail.com](mailto:manishpatil3493@gmail.com)

[anantgodbole8@gmail.com](mailto:anantgodbole8@gmail.com)

### **ABSTRACT:**

Traffic control has been a serious issue since human civilisation. The modern world demands mobility. Cars represent the main method of mobility, but today's congested highways and city-streets don't move fast, and sometimes they don't move at all. India has 70% mobility on the road mode; hence the major problems created in large cities are traffic congestion, wastage of valuable time in developed countries. For this need to solve the major problem of traffic, to achieve the strategic goal of reducing the congestion and improving the safety of the road users, main aim is to design the best traffic system that will be flexible and adoptive. Intelligent traffic systems (ITS), sometimes called intelligent transportation systems, apply communications and information technology to provide solutions to this congestion as well as other traffic control issues. The intelligent transport system (ITS) takes the first step towards meeting this challenge by providing effective, reliable and meaningful knowledge to motorists in time through signals. Problems like high traffic congestion, low transportation efficiency, low safety and endangered environment can be solved through innovative and sophisticated ways of handling latest techniques. In this project report various factors required to design signal system at intersections are under studies in details to implement them for the design of traffic signals for the data collected through traffic surveys at various congested points Powai Naka, Rajwada Bus Stand, Satara City Bus Stand, Bombay Restaurant of Satara city.

**KEYWORDS:** Traffic, Accidents

### **INTRODUCTION**

**Traffic** is the movement of people and goods from one location to another. The movement typically occurs along a specific facility or pathway that can be called as guide. It may be a physical guide way, as in the case of a railroad, or it may be a designated route, marked either electronically as in air travel or geographically as in the marine industry. Modes of **transportation**, can be broadly characterized as road, rail, air, and maritime. Traffic evolves because of a need to move people and goods from one location to another. One of the principal challenges in traffic control is to accommodate the traffic in a safe and efficient way. Efficiency can be thought of as a measure of movement levels relative to the objectives for a particular transportation system and the finances required for its operation. For example, a railroad can be thought of as efficient if it can accommodate the travel requirements of its customers at the least cost. It will be thought of as inefficient if an alternative (e.g., a trucking service) can also meet

customer needs but at a lower cost. **Safety**, the management of traffic to reduce or eliminate accidents, is the other critical reason for traffic control. An airline pilot needs to be warned of high winds at the destination airport just as an automobile driver needs to be warned of a dangerous curve or intersection ahead. Traffic control has as its principal objective to manage the movement of people and goods as efficiently and safely as possible. In road traffic, intersections with traffic lights (i.e., green, amber, and red indications) will often add a separate lane with a lighted green arrow to allow left turns with no opposing traffic. This frequently results in longer non green periods at the intersection, causing an increased delay and a reduction in efficiency and mobility. Traffic control system will always have to satisfy the conflicting goals of safety and mobility. For these elaborate operational procedures, rules and laws, and physical devices (e.g., signs, markings, and lights) are few of the components of any traffic control system. The traffic control system is main part of the transportation

engineering and the efficient traffic system is need in the developing country. In transportation the main problem in large cities (urban) is the traffic congestion and wastage of the valuable time in working days. New technologies help monitor and manage traffic flow, reduce congestion, provide alternate routes to travellers with due safety, enhance productivity, and save lives, time and money. Intelligent transportation systems provide the tools for skilled transportation professionals to collect, analyse, and archive data about the performance of the system during the hours of peak use. Road traffic control at its most elemental level is achieved through the use of a system of signs, signals, and markings. For designing the traffic control system the survey methodology is adopted. In this method survey to study the required parameters for designing the system. The survey of peak hour, the actual volume of the vehicles on the road, density of the vehicles running in hour. The real time or waiting time of the vehicles, road signs (informatory sign) has been conducted at various locations Powai Naka, Rajwada Bus Stand, Satara City Bus Stand, Bombay Restaurant of Satara city. The elements of traffic control system plays important role to make the city as a smart city. To regulate road traffic & design efficient & economic traffic system there are three main components.

1. Traffic sign
2. Traffic signals
3. Traffic Markings

**METHODOLOGY**

Steps For Completion Of Work

1. Site Selection
2. Data Collection
3. Design
4. Analysis
5. Conclusion

**Site Selection**

**1. Satara City Stand**

It is one of main point in satara city. Comparing to other point crowd is in big amount due to bus stand. Big vehicles like buses causes the traffic problems. Total 3 roads are joined to that point. 1)Powai naka to bus stand 2)Shahu stadium to bus stand 3)Parange chowk to bus stand.

**2. Powai Naka**

In satara city, powai naka is biggest traffic congesting point. All the main roads are connected to powai naka. Total 8 roads are connected to that point. 1)ZP Chowk to powai naka 2)Y.C.College to powai naka 3)Bus stand to powai naka 4)Sayaji highschool to powai naka 5)Police head quarter to powai naka 6)Civil hospital to powai naka 7)Kuber vinayak mandir to powai naka 8)Sainik bank to powai naka. That are the roads which causes for traffic congestion at powai naka chowk.

**3. Rajwada Chowk**

Rajwada chowk is also big point like powai naka. Here at that point traffic is in large amount. Total 4 roads are

connected to that rajwada chowk. 1) Mangalwar tale road to rajwada chowk. 2)Samarth mandir road to rajwada chowk. 3) Golbag (chaupati) road to rajwada chowk. 4) Vyapari sankul to rajwada chowk.

**4. Bombay Restaurent**

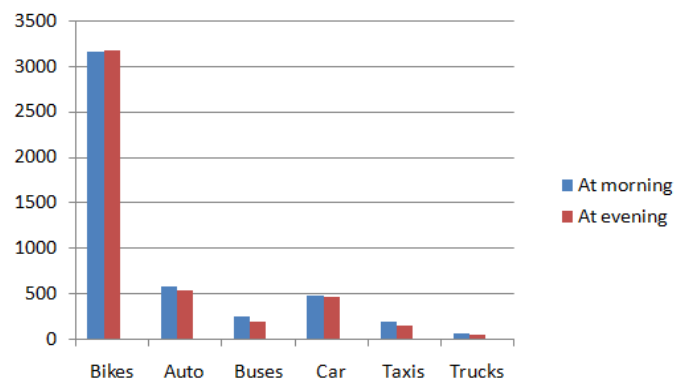
That point is at pune-banglore national highway. Total 4 roads are connected to that point. 1)Mahuli road to Bombay restaurant chowk 2)Wadhe phata to Bombay restaurant chowk 3)Visawa naka to Bombay restaurant chowk 4) SPS College(highway) to Bombay restaurant chowk. Due to highway the traffic congestion problem occurred.

**DATA COLLECTION**

**1. Satara City Stand**

It is one of main point in satara city. Comparing to other point crowd is in big amount due to bus stand. Big vehicles like buses causes the traffic problems. Total 3 roads are joined to that point. 1)Powai naka to bus stand 2)Shahu stadium to bus stand 3)Parange chowk to bus stand.

**Graph of different type of vehicles via  
No. of vehicles**



**Table No. 1 Survey at peak hour 09:00am to 10:00am**

VEHICLES	E – W	S – N	N – S	TOTAL
Bikes	1173	1026	960	3159
Auto	174	147	246	576
Buses	18	117	105	240
Car	159	171	168	480
Taxis	54	90	48	192
Trucks	18	21	12	51
			total	4698 veh/hr

**Table No.2 Survey at peak hour 05:00pm to 06:00pm**

**REFERENCE**

- Dr. Tom V. Mathew, IIT Bombay, design principle of traffic signal.
- International Journal of Modelling and Optimization, *Vol. 3, No. 2, April 2013* Modelling and Simulation of Urban Traffic Signals.
- International Journal of Advances in Engineering & Technology, Nov 2011 ©IJAET ISSN: 2231-1963. DESIGN AND SIMULATION OF AN INTELLIGENT TRAFFIC CONTROL SYSTEM.
- Traffic Signs Manual 2013 London: TSO, Fourth edition 2013.
- John. A. Endler. Signals, signal conditions & the direction of evolution vol. 139 march 1992 .
- Yin ZHU , Junli Wang RESEARCH ON URBAN TRAFFIC INTELLIGENT INTEGRATED SYSTEM in 2005 in vol. 6, pp. 2349- 2364
- Y. Dakhole & Mrunalini. P. Moon., “ Design of Intelligent Traffic Control System Based on ARM”,Aswini. in vol. 1, in nov.2013.