

## **TO STUDY THE DEVELOPMENT OF SMART ROAD FOR ECONOMICAL & SOCIAL GROWTH OF URBAN AREA**

Amit Kumar Sharma

### **ABSTRACT**

Govt. of India Plan to develop 100 smart cities in which Bhopal is one of the part of it. The Bhopal Smart City have 342 acres area which is well planned with smart roads and with many amenities in South and North TT Nagar Bhopal. The area is designed for different sectors as PSP, Commercial area, Residential area, Green land, etc. The land is divided in different zones; this is one of the big projects that is designed as a smart city for the social and economic growth for the public and private sector. The road is designed with full amenities accordingly for the different sectors. The smart road is designed which enhances the development of the entire area.

The era we live in is often regarded as the era of smart technology. Smart is a very popular term today and means clever, intelligent, perceptive and receptive. As an acronym for Self- Monitoring Analysis and Reporting Technology, it can be understood in its broadest sense if it describes the essential characteristics of the innovative technologies that shape today's society in everyday life. Thus, the advent of the Smart Age, the era of intelligent technology, has greatly shaped and changed many aspects of today's society compared to the past. In this panorama, several new issues are related to transport infrastructure systems and more importantly road transport. Road transport in the modern sense, in pre-World War II India, very few vehicles used gasoline or diesel as fuel and had internal combustion engines.

## Introduction

Smart Roads means road infrastructure integrated with advanced network and communication technologies that allows connected people to move more intelligently. Unlike conventional roads, smart roads dynamically interact with drivers through active perception and alternative routes in emergencies, and also rely on a continuous supply of energy, experimenting with new frontiers for autonomous driving. Smart Road means the road infrastructure integrated with advanced network and communication technologies where connected people move more intelligently.

The road plays an important role in the development of the city and the smart road has all the facilities. The road is important for transportation and well-developed roads play a very important role in the transportation. As the road makes connectivity with one part to the other part as the road is well developed and wide roads can carry heavy traffic on it, traveling times may also decrease the cost of the products, and many more Industries are also established in the respective area which increases the Investment of valuable companies in that area. The incremental growth of industries and companies also creates job opportunities for the skilled and unskilled workers and many more sectors also come into play for it (e.g., Schools, Hospitals, shops, food centers etc.), the workers need to live nearby the working area, which makes the purchasing of the residential area nearby the area.

## Methodology

Keeping the above future aspect in mind the sector is divided into different zones as PSP, Commercial land, Residential, Recreations, etc. and the road is also designed accordingly. The road is also divided into 5 different parts according to the importance of the sector, it's also increase socially as Smart Road infrastructure is one of the key factors on which country's growth depends. The parts with area important for the development of the road is known as the basic component of the road and are divided in the Medians, Kerbs and Camber/Cross fall. In this project various sizes of duct are considered with respect to the width of road. Function of the duct is to carry different sizes of electric poles and drinking water pipeline. This feature enhances and controls the further maintenance work of the road that is conducted during maintenance of pipelines or other components under the road, manholes are provided for ease of workers. This duct can be an assigned space below the footpath, along the roadside wherein all the utilities can flow. The following are the Parts of the Smart Book other than basics road components are Utility Duct, Smart Pole, ITMS Network, Bollards FRP Grading, FRP Covers and Cycle Track (non-motorized vehicles).

## Results

With the increase in urbanization, many cities around the world are experiencing a very rapid growth in the number of vehicles which lead to serious traffic congestion problems. This places a greater demand on operating roadway systems with maximum efficiency. One major factor that affects the traffic flow is the

management of the traffic at road intersections. Hence a good traffic management system is needed to maximize the efficiency of the traffic flow. The principal benefits of the ITMS are enhanced motorist safety, reduced incident response and clearance time, and efficient use of available roadway capacity. The ITMS allows response procedures and strategies to be developed in advance to deal safely with various traffic operations and environmental conditions that will occur.

## **Discussion**

The smart road is enhancing the transportation facilities with make convenience to the citizens. The good quality of the transportation result in the reduction of fuel and this play important role in social and economic growth of the city. The smart road is full filled with all the safety features sign board, road parking, proper making, ITMS, traffic signals this make smooth movement of the traffic it reduces the accident. The motorized and non-motorized vehicles are also separated which reduces the volume of the traffic. As the road makes connectivity with one part to the other part as the road is well developed and wide roads can carry heavy traffic on it, traveling times may also decrease the cost of the products, and many more Industries are also established in the respective area which increases the Investment of valuable companies in that area. The incremental growth of industries and companies also creates job opportunities for the skilled and unskilled workers and many more sectors also come into play for it (eg. Schools, Hospitals, shops, food centers etc.), the workers need to live nearby the working area, which makes the purchasing of the residential area nearby the area. The initial cost of smart road is 70% more than that of ordinary road but as per future aspect the smart road will enhance the development of the country and save the valuable time of the public and fulfill all the basic need of the person, also reduces the problems which come across the maintenance of the road. As the overall development of any city or area road is very important it also helps in the economic and social growth of the area.

## **Conclusion**

From the above discussion we concluded that if we design the road smartly it will not only use for the transportation but also fulfill many basic need of the community of the respective area and also generate the revenue form that and also reduce the maintenance cost that was imposed due to line that buried under the road with is not a part of road construction, but these all problems are reduced by using the smart road with the help of the duct. The collection of segregate sewage is also possible due to smart road with duct feature. The traffic is also mobilized with the smart road with non-motorized vehicles track, it reduces the traffic volume and also permit the vehicles to maintain certain speed limit without obstruction. This will increase the investment of the valuable companies in the project which indirectly and directly increase the investment and creations of the job of skilled and unskilled labor. As Narendra Modi PM of India said on 75<sup>th</sup> anniversary of the Independence Day of India (Azadi Ka Amrit Mahotsav) that the India have to become 3<sup>rd</sup>

largest economy of the World for that the Infrastructure is the basic need of today's scenario. As the companies stacking toward the India for the investment and for this the Infrastructure and the Road connectivity is very important to every part of the India. As the initial cost of the smart road initial construction is more 70% more that of ordinary road but the maintenance cost is zero with comes due to buried of the sewer line, pipeline, gas line etc. As the overall development of any city or area road is very important it also helps in the economic and social growth of the area.